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ABSTRACT

Recommendations for improving the college curriculum and the quality of the work force are presented in this report of the Network Curriculum Round Table, a Queens College project involving representatives of business, government, and education. Following a brief statement of the project's purpose and an anecdotal account of its activities, the reports of four special task forces are summarized. These reports, originally presented at a day-long workshop conference, are then presented in full. They address these topics: (1) the impact of new technologies, (2) the curriculum and skills, (3) the impact of social change on the workplace, and (4) new curriculum directions. Following these reports are three general papers, which were presented at the workshop by individuals, and a digest of major points raised at the conference. Finally, three appendices list project participants and describe project activities. (KH)

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EDUCATION AND THE WORLD OF WORK

Final Report

"The Network Curriculum Round Table"

A Project Funded By

THE EXXON EDUCATION FOUNDATION

May 1983
Queens College, CUNY

Professor Max A. Eckstein
Professor John E. Seley, Co-Directors

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INTRODUCTION

In September 1981, with the assistance of a grant from the Exxon Educational Foundation, a new project was initiated at Queens College: the Network Curriculum Round Table. The following paragraph provides a synopsis from the original proposal and recalls the rationale and intent of the projected activity.

The Proposal

Colleges face three connected problems with regard to curriculum: an excessive, and sometimes misguided, vocationalism on the part of students; the growth of continuing education and narrowly defined service courses; and a plethora of educational offerings by large corporations, private organizations, and incentives to study while working. Whether separately or together, they do not adequately or systematically meet the educational needs of individuals and those of the economy and society at large. The Curriculum Round Table "would enable key institutional leaders to meet with university and other educational specialists to identify the areas of common and divergent educational need, develop curricula which best meet these needs, and evaluate and redevelop such curricula..." The reasons for choosing a network approach are as follows: it is a technique for breaking down the false dichotomy between faculty in higher education and employers, producers, and consumers of goods and services; and it facilitates continuing self-evaluation within the group as well as expansion to other people and settings. The first step of the proposed model for action would be to outline relevant educational needs and identify key issues; the second would be to shape an appropriate curriculum to meet these needs. The process would involve an everwidening network of informed, interested, and involved people and, at least implicitly, a re-examination of the traditional liberal arts curriculum in the light of contemporary circumstance.

What follows is a brief anecdotal account of project activities. Succeeding sections of the report include: (1) documents prepared by separate task forces, each working on a somewhat different aspect of curriculum and the needs of society or the workplace; (2) general papers presented by three speakers at a day-long workshop conference where the task force reports were presented and discussed; (3) a digest of major points raised in discussion at the conference; and (4) appendixes which document project activities and participation.

Project Activities

Phase I. As they began work, Project Staff had two main purposes: to inform themselves in some detail about what kinds of relevant concerns were being voiced by different sectors of the local economy; and to develop a list of individuals who would be interested and knowledgeable participants in subsequent activities. First, a number of informal discussions were held with individuals, both on and off campus: faculty members, business people, persons in government, private corporations, and so on. From these informal discussions, and from preliminary study of the general issues, the first Round Table meeting was arranged at the Harvard Club on February 3, 1982, attended by about twenty-five persons (see Appendix A: "The Network Curriculum Round Table," an informational statement; and "The First Meeting" -- Participants).

Phase II. Despite some agreement of a general nature, the discussion of February 3 elicited little consensus of what needed to be done, or could be done, by colleges working together with people in industry, commerce, and government. In retrospect, it appeared naive and over-optimistic to expect any such agreement to emerge, even about a set of key questions that might be addressed. A more focussed approach was necessary, Project Staff agreed, and this was confirmed by individual follow-up discussions and further study of reports of similar efforts by other institutions and consortia. As a result, after considerable deliberation, several topics were selected as potentially promising and volunteers were sought to engage in closer consideration of each. The topics, though still rather general, approached the subject of the college curriculum with somewhat different sets of considerations; the volunteers were invited from a growing list of appropriate persons who now also included Queens College alumni in responsible positions in employment. Each study group, or task force, would consist of four or five people -- one or two from Queens College faculty, the remainder from the private sector and other appropriate areas.

The purpose of establishing these task forces was to help make explicit the needs of business and the ways the University might respond to those needs. Each group would work independently, making its own arrangements to meet, draw upon their experiences, involve others, and develop a written report on its deliberations. While the task forces would be encouraged to define their own concerns, all were urged to focus on the question: How can the needs of the employment sector be met by the University while maintaining the University's integrity and uniqueness as a center for knowledge?

Four task forces were ultimately established, each willing to examine one of the following themes:

The Impact of New Technologies;

The Curriculum and Skills;

The Impact of Social Changes on the Workplace Environment;

New Curriculum Directions.

All the participants were invited to a luncheon meeting at the C.U.N.Y. Graduate Center in September 1982, for an initial briefing and their first small group discussion. The purposes of the task force activities were described, the meanings of the four themes were developed (though Project Staff deliberately tried to leave these as open as possible in order to encourage task force members to define their own objectives and concerns), and other relevant information and guidelines were presented.

Particular attention was given to the report and the outcomes: they might include, it was suggested, specific new courses, changes in existing courses, new programs, on-campus or off-campus activities. They might consider seminars, conferences, internship arrangements, consulting or research activities, all on a collaborative basis. The reports might, for example, explore new ways in which employers and employees might become involved in college courses and programs; or how college students might undertake research into projects with local industry or other agencies under faculty supervision; or how faculty might give specialized assistance to companies or agencies seeking to improve or institute their own staff development programs. The suggestions were meant to be examples, not prescriptions. Participants were merely urged to focus on their respective themes, keeping in mind the broad objectives of the Project, and the nature and needs of both employment and the University.

After this meeting, each task force proceeded to meet and work independently, with the assistance of the Project Staff, and each prepared a draft report for further consideration (see Appendix B: "Memorandum Sept. 15, 1982" (minutes of luncheon meeting, September 9, 1982) and "Participants").

Phase III. On December 10 1982, a day-long workshop conference took place in the Student Union Building at Queens College, under the title of "Education and Employment: the Relation of College Study to the World of Work." Its purpose was two-fold: to generate discussion on the general topic of the project and responses to the four task force reports; and to increase the number and range of interests of participants. Invitations were sent to selected faculty and administrators and to a wide variety of off-campus contacts: managerial personnel, staff development officers,persons associated with other College projects (e.g., Cooperative Education), and alumni. Some had become interested in the Project at an earlier date but were unable to participate in task forces. The response was excellent. Some seventy-five people attended, approximately half from the campus, and the morning program consisted of separate seminar sessions devoted to presentation and discussion of the task force reports. After lunch, a plenary session was held during which three distinguished speakers addressed aspects of the conference theme, followed by discussion (see Appendix C: "Education and Employment: the Relation of College Study and the World of Work: Program" and "Participants").

The conference represented the formal culmination of the externally funded project as of the time of writing. The body of this report consists of the four task force reports, somewhat revised after workshop discussions (Section 1 - 4), the presentations made by the three speakers at the afternoon panel (Section 5), a digest of major points raised in various discussions during the day's conference activities (Section 6), and a set of Appendixes documenting activities and participation in each major phase of the project.

Afterword

A number of forces have encouraged the Project Staff to pursue these efforts further. While the issues have been discussed and have become somewhat more focussed, they remain important and unresolved; many different people have demonstrated interest, some in occasional discussion and others in more extended participation; and the College administration and faculty members have taken a positive though never uncritical attitude to what has taken place so far. An atmosphere of discussion has been generated and the possibilities for action are promising. Thus the initial purposes of the project have been achieved.

Encouraged therefore by these circumstances, at least one more step is projected, with the College's support. This is already under way and consists of more systematic follow-up activities based on what has already been accomplished. Specific recommendations and general suggestions by the task forces and discussants need to be closely examined. Some of the ideas need further development; some items could be consolidated; some proposals need to be clarified in operational terms. In particular, priorities need to be ordered according to importance and feasibility. In consultation with others, the Co-Directors of the project are developing a limited number of detailed recommendations for action by the College, which they will then submit to appropriate persons and groups for their consideration. Network participants continue to meet and exchange ideas. It is anticipated that these activities will result in proposals for curriculum as well as institutional development, and will keep open the lines of communication and discussion already established.

SUMMARY OF TASK FORCE REPORTS

I. Impact of New Technologies

The task force concluded that the introduction and widespread use of new technologies is, indeed, a significant development. These technologies cannot be understood without an examination of their functions in the context of specific businesses and their broader potential based on other factors occurring in society (social, political and economic changes).

The task force made three curriculum recommendations based on this conclusion. These are an overview seminar on what is happening in business (with particular attention to new technologies), a pre-business major, and an internship which focuses on actual business problems. It is felt that these innovations will address the dual concern of educating students about the use and potential of new technologies and preparing them for the environments in which the new technologies will be used.

II. Curriculum and Skills

Both sides of the partnership (business and the university, in this case) are receiving and sending mixed signals. Within days of each other two articles appeared in major publications:

> "The Edge is a College Education" (The New York Times),
>
> and, "Bachelor's Degree a Worthless Credential, Conference Concludes" (The Chronicle of Higher Education).

Samuel Ehrenhalt, Regional Commissioner of Labor Statistics in

New York, is quoted in the Times: "College graduates' relative earnings position continues to be superior, marked by lower unemployment, higher labor force participation and the advantages of degree holders in the competition for better jobs in an increasingly complex and technically demanding world of work."

On the other hand, another conference report concludes that the baccalaureate degree no longer represents shared educational values and calls for efforts to restore meaning and coherence to undergraduate education. The report recommends that someone earning the bachelor's degree should possess these skills:

-- Reason critically;

-- Write and speak clearly and cogently;

-- Understand one's role as a citizen;

-- Function effectively in society.

This closely parallels the views of the task force. Rhetoric, blaming, meetings can go only so far in the solution of complex issues. What are some of the immediate, practical, concrete steps which could be taken?

Recommendation I: Queens College and CUNY must take a hard look at the adequacy of its guidance and remedial support services. If students are not receiving these services, the institutions have to explore ways of doing so.

Recommendation II: The College should insist on demonstrated competency in the basic skills so that a diploma from Queens College will have meaning, not just in a content sense, but in the basic skills competency areas as well. Acceptable standards of expression (writing, speaking, listening) in English should be a requirement and responsibility of the College as a whole -- all departments.

Recommendation III: If Queens College has concerns about the degree to which its graduates are "making it" in the workplace, vis-à-vis basic skills preparation while in college, that it conduct a longitudinal study of randomly selected graduates. The results of such a study might provide useful data for planning.

III. The Impact of Social Change on the Workplace

The body of the report is devoted to noting the significance of the following social phenomena for the work force, the workplace, and the college:

An aging population and an abundance of early retirees;

Increase in the number of single parents and both parents working;

Declining child population;

Significant changes in roles and expectations of women;

Responsibility to educate and employ the handicapped;

Substance abuse;

Use and potential abuse of computers.

The problems of integrating graduates into the work force are increased, in the minds of many potential employers, by the following:

Reputed inability of graduates to transfer skills learned in an academic setting to the place of work; to function effectively as a part of a team;

Lack of practical training in many discipline areas; overspecialization;

Growing bi-lingual populations (both workers and customers/clients);

Need for education as an ongoing process, not ceasing at graduation.

Two systems of cooperation between the college and the workplace are proposed and discussed:

a. A modernized apprenticeship system for students;

b. An "adopt an employer" plan for departments.

IV. New Curriculum Directions

The main focus that emerged from our discussions was: What elements are common to both the general college curriculum and the needs of the work place? How are these addressed and how might they be attended to more effectively in the mutual interests of both communities?

The report describes briefly both the college (its students and its mission) and the capacities needed in the workplace, considers the elements of curriculum common to both, and offers a number of general and specific proposals for further consideration. Key foci of the discussions of curriculum issues are that the following elements are central to successful functioning in the work environment as well as inherent in the idea of a liberal arts education: dealing with information and ideas relating to a specified task; planning and executing a job of work; communicating results to people; dealing with people as well as with facts and ideas. The task force therefore gave its attention to process rather than to any particular subject matter content, and considered instruction in all areas of study as vehicles for reaching objectives. We emphasized the need for opportunity in all studies for students to: plan and execute a project requiring information to be sought, acquired, and used; work with others in a team effort; report back in both written and oral forms; receive feedback and evaluation and have the opportunity to act upon it; comprehend the relation between their own specific subject matter and other areas of study; become aware of the general applications of these capacities in life and work after college.

Recommendations are directed at college administrators and faculty, and at people in various capacities in the work force, especially those concerned with selecting employees and staff development. The common feature of all the proposals is that they call for advice, input, and/or action from both campus and off-campus communities. Recommendations include:

a. Consideration of a mechanism for continuing and extending communication between college people and business and other sectors on broad curriculum topics;

b. Extending the mechanism (the network) to develop and/or initiate several types of curriculum activity, and to exchange knowledge, skills and services, for the mutual benefit of the college and the work force.

c. Ways of improving faculty and student access to information about how their studies relate to the world of work.

d. Ways of more systematically developing "people skills" needed in the workplace as part of the college curriculum.

e. Drawing attention to the kinds of college instructional approaches, that are likely to benefit students in the life of work.

SECTION 1. THE IMPACT OF NEW TECHNOLOGIES

TASK FORCE REPORT

Participants
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Adrian J. Grossman, New York Stock Exchange
Esther Levine, Queens College, CUNY
Lauren Seiler, Queens College, CUNY
John E. Seley, Queens College, CUNY
Warren Waldbrand, The Omni Group, Ltd.

The concern of our task force is with the effect of new technologies on business and the workplace and the response which institutions of higher education should make to these changes.

The Changing Workplace

Early in our discussions, we recognized that there are many types of technological advances occurring in business, and a large variety of workplace environments in which these changes are manifest. For example, the secretary in a large corporation must learn word processing and may spend much of her/his day in front of a screen. The laboratory worker may be faced with new strains of bacteria made possible by advances in gene splicing and laboratory tools. Regulations regarding foods and drugs have had to be re-written as highly sensitive instruments detect hazards previously hidden from scientists. Corporate executives may find themselves communicating by video phone. The financial markets are now able to execute transactions worldwide in seconds.

New technologies include machine-to-machine interactions, person-to-machine interactions, and person-to-person interactions. Computers can now "talk" to each other over phone lines; while electronic mail lets people communicate efficiently and quickly. Advances in data processing have made highly complex mathematical and analytical manipulations accessible to those without specific training in methodology. Thus, linear programming and computer-generated graphics allow professionals as well as scientists to utilize the power of the microchip to develop solutions to problems which are more accurate and comprehensive than previously possible in a short time frame.

The understanding of opportunities presented by new technologies is critical to education in our society. It is necessary to understand the functions to which new technologies can be applied and the principles underlying these applications. We must also understand the limitations of technologies, especially important in light of the mystique which has arisen over the power of new machines.

However, the task force concluded that training in the use of new technologies was not the singular response a liberal arts college should make to these developments. There are three reasons for this. First, we believe that the role of the liberal arts college is education, not training. The difference lies in the broader perception of technology as concept, not just application. Computer networking and satellite transmission are important to understand as concepts, even if students are not trained in their specific use. This is not to say that training in the use of specific technologies (like computers) is not a critical part of understanding their role in society. Nonetheless, there is a distinction to be made between the learning of computers for particular applications and the understanding of the societal changes which computers help create. Hardware (and software) are the tip of a large iceberg.

The second reason for not focusing exclusively on the use and applications of technologies is due to the nature of change. Technologies are being introduced and modified so quickly that much of what a student learns in school would be outdated by the time the student becomes an employee. Indeed, it is not possible to train students (if that were the intent) in the range of technologies currently being used in businesses. It is far better to have students with some (representative) hands-on experience and an understanding of technology in society (its scope, limits, ethics, etc.).

The third reason for taking a broad view of new technologies is that the introduction and use of these technologies may force rethinking of many aspects of business, but in order to understand the import of technologies, it is also necessary to understand these other aspects. For instance, advances in data processing and information systems affect privacy in our society, and raise issues of business ethics and the role of the private sector in utilizing information about individuals. It is easy to envision a "bottom up" revolution which causes changes in how corporations make decisions based on the introduction of new, powerful machines. On the other hand, much of the ability to take advantage of new technologies is dependent on economic, political, or social forces. Is large-scale introduction of robots possible (or appropriate) in industries where unemployment is high? There is a "top down" effect on limiting technological innovation as well as a "bottom up" effect of technological changes on business and society.

Recommendations

The task force concludes that the proper understanding of new technologies in the workplace requires a three-pronged approach whose focus is on putting new technologies in the context of changes occurring in business and society. The first prong is an introduction to what is happening in business. This "overview" must involve people working directly in business in a wide range of capacities. It should be done, ideally, in an open-ended style, allowing students to question every aspect of the work experience, from day-to-day behavior to major decision making.

The second prong of the student's education should introduce major concepts in business. This would include business law, ethics, various business functions (marketing, finance, etc.), systems and analysis, and, of course, technologies. The idea of this set of courses (which we have designated a "pre-business major") is to prepare students for the business world and to place new technologies in their appropriate context. Principles as well as problems should be addressed. For instance, when technologies are described and demonstrated, it will also be important to discuss technophobia and technophilia.

The third prong would be an internship in which real business problems would be addressed by students. The task force feels that the best way to do this would be by bringing business problems to Queens College to be resolved under supervision of faculty. Sending students out to work in business might be more fun for them, but is much less likely to result in the kind of experience which the task force believes is appropriate. Students should be able to develop a certain level of competence in problem-solving by addressing real, significant problems, which is unlikely in the more traditional internship experience.

These broad-based recommendations are not meant to downplay the import of new technologies. Rather, it is through a broad understanding of the form and function of business in our society that new technologies can be observed and utilized.

BUSINESS AND TECHNOLOGY

No one denies that new technologies -- computers, satellites, advanced scientific instruments, and others -- are changing society.

Microchips can process vast amounts of data in milliseconds, and lasers make possible everything from automated dressmaking to microsurgery. There seems to be no end to those willing to expound on the latest marvels of hardware and software. Dozens of magazines have sprung up with names like Byte, High Technology, Technology Review, and Infoworld. "Computer literacy" seems almost to have replaced "reading and writing literacy" as an educational standard.

Arthur D. Little has estimated that by 1990, between 40 and 50 percent of all American workers will be using electronic-terminal equipment on a daily basis. In response, many colleges and universities have made computers a part of the college experience. In addition to the traditional engineering applications (schools like Clarkson and Carnegie-Mellon will soon require freshmen to purchase micro computers), there is increasing use of computers in the humanities and liberal arts.

The power of the new technologies sometimes seems to threaten those who cannot keep up. One concern of the task force was with the differential effect which such technologies have on types of businesses. Can the small business compete with the corporation when the latter has far greater technological resources at its disposal? Will individuals without responsibility for the validity of technologies, that is, those who do not share the interests and concerns which they are designed to support, have a free hand in shaping them? How does one prevent the cathedral builder (for example, the data processing technician) from dominating the nature and structure of the religion (information systems) to which it is dedicated?

Thus, new technologies provide powerful new ways for individuals and institutions to change society. What form these changes will take and how they will be utilized is dependent on the nature of the technologies, the people or institutions who will be using them, and society's willingness and ability to accept them.

EDUCATIONAL RESPONSE

Thus far, education for business has not focused primarily on new technologies, but rather on the complex of jobs which a business does. Specialized training in business skills and practices abounds. D.J. Gazzetta, president of the University of Akron, notes that there are 3,000 entities offering business and management courses, of which only 700 are colleges or universities. In addition, there are 40,000 publicly offered business seminars annually, exclusive of college and university courses. The American Management Association has approximately 100,000 students in its courses given internally at corporations to train employees in everything from basic writing and human relations to advanced statistical procedures (see Appendix for some examples of courses).

Universities, for their part, tend to continue a focus on more general "skills" for business. Business schools, while adopting more use of computers in the classroom and for assignments, still teach basic economics, finance, accounting, and statistical methods. Business law, marketing, and strategic planning are frequently part of the curriculum, as well. But by their very nature, training people for a variety of middle-management position in business (primarily large corporations or financial institutions), the business schools must, of necessity, continue a tradition of generalized courses and informal learned behavior like dressing appropriately and adopting certain social attitudes. Even the more ambitious projects, like New York University's Management Decision Laboratory, can only simulate a small range of possible business types and environments.

The Alfred Sloan Foundation recently awarded over $3 million in grants to liberal arts colleges to help them improve and develop instruction in applied mathematics, technology, and analytic reasoning. The purpose is not to train students for business, per se, but to prepare them for "lives in a high-technology society."

This is not to argue that business schools or universities in general should attempt to educate students in the more specific skills needed for business. It may be true that learning to program in various computer languages may make one student more desirable than another for a particular business, but universities will never be able to duplicate the resources, talents, and energies necessary for particular training already accomplished by hundreds of private firms and by businesses, themselves. Indeed, the task force believes that training in the use of specific technologies is not in the best interests of business. Students with the broader, contextual education which we are advocating should be more prepared to respond to the needs of businesses (of all types) than their more technologically trained counterparts in many cases.

Many business schools have begun to recognize the importance of work experience for their in-coming students. It is felt that such students will better understand the concepts which are being explored, even though there is still little effort to provide specific technological training. The task force agrees with this development, and it forms another part of the reason for suggesting three approaches to undergraduate education for business and new technologies.

THE THREE-PRONGED CURRICULUM APPROACH

As noted, the task force concluded that a three-pronged approach to understanding new technologies in business is appropriate. This includes: (1) an overview of business, (2) a set of courses providing technological literacy and business concepts, and (3) experience with a specific business problem.

The need for business courses at the undergraduate level stems not only from changes in new technologies and the need to understand these changes as part of a liberal arts education (on this we agree with the Sloan Foundation). It stems also from the fact that many students now enter business directly from undergraduate school. These students are often ill-prepared for the kinds of functions which businesses do, or for the discipline and thought which is involved in various employment situations.

The idea of a business overview, a pre-business major, and an internship are not meant to replace the liberal arts focus of undergraduate education. Nonetheless, it is believed that a strong liberal arts background combined with some understanding of the theory and practice of business would provide students with a unique and powerful combination to offer prospective employers.

Overview Seminar

This course would attempt to introduce students to the range of activities which business and other institutions engage in with particular attention to the use of new technologies. It is, in a sense, the current reality of the employment situation. It is envisioned as a seminar in which presenters (primarily those in various employment situations) talk informally about what they do. Students might be given tours of various firms or institutions, observing new technologies at work. It is important to bring in those who are recent graduates as well as those in a variety of career paths. Public sector employees would be encouraged to participate, as would those from small as well as large businesses. The overview seminar would become an important means of checking on the relevance of other parts of the curriculum. Presenters might be asked to talk about skills which they find useful in what they do (with particular attention to new technologies).

The task force agreed that this seminar should be offered on a non-credit basis, but required for pre-business majors. This arrangement is believed to be the most appropriate to support and encourage the non-traditional nature of the seminar while ensuring that its message is received.

Pre-business Major

This course of study would be designed for those who intend to go into business , or simply for those who feel that this sequence provides a good complement to their traditional liberal arts major. The courses might be divided into four topics: (1) business law/regulations/ethic, (2) business functions (manufacturing, marketing, finance, human relations, administration, etc.), (3) technologies (communications, data processing, etc.), including specific uses and general concepts, and (4) systems and analysis (information systems, analytical techniques, problem solving, etc.). A "current business" course should focus on current trends -- changes in the type, size, and structure of business and work, for example, and the place of American business in the international economy. A course on "Management of Human Relations" might focus on the various psychological and sociological issues which arise in business, including technophobia and technophilia.

Much of a pre-business major is simply a way of structuring and identifying topics which are already learned in the traditional undergraduate curriculum. The United States Department of Labor, for example, has identified skills learned in liberal arts majors which are applicable to business concerns. The pre-business major will help undergraduates identify and coordinate these skills while enabling prospective employers to recognize a commitment to understanding and helping business.

Internship

A critical part of the task force's proposals is to establish more direct relations between students and businesses. It was felt that the best way to do this would be to establish a form of hands-on experience in business. Whereas MIT's engineering school assigns teams of students to work with local firms on specific problems, we propose that students bring business problems to the college. Specifically, students would be assigned the task of seeking out a specific business problem (private or public sector). The application of a new technology might be such a problem. This problem would be studied by the students (in groups or individually, depending on the particular problem addressed) with close faculty supervision. A form of contract would have to be devised to ensure privacy and performance. The students would present their analysis and solutions to the business or businesses which are selected for study, and they would be critiqued by those businesses. One possible example of such an internship might be a problem of the College, itself. For example, students might help the College automate its purchasing procedures to help it evaluate efficient and cost-saving changes.

Administration: The overview seminar, pre-business major, and internship should be administered as a separate program, independent of any single department. This will ensure that it is not perceived simply as a minor in another field or as a narrowly conceived field of study. Separate administration will also provide the necessary time and resources to help establish ties to businesses both for participation in the overview seminar and for the internships. The Cooperative Education Program at Queens College is a possible model for this program.

CONCLUSION

The task force concluded that the introduction and widespread use of new technologies is, indeed, a significant development. These technologies cannot be understood without an examination of their functions in the context of specific businesses and their broader potential based on other factors occurring in society (social, political, and economic changes).

The task force makes three curriculum recommendations based on this conclusion. These are an overview seminar on what is happening in business (with particular attention to new technologies), a pre-business major, and an internship which focuses on actual business problems. It is felt that these innovations will address the dual concern of educating students about the use and potential of new technologies and preparing them for the environments in which the new technologies will be used.

APPENDIX: Some Examples of Courses Now Taught in Business

COMMUTE COURSES *

Put It In Writing (5051)

LENGTH: 3 Days (1 day per week for 3 consecutive weeks)

GROUP SIZE: 20 Trainees per class

TRAINEE PROFILE:

Job Class #3 & #4

COURSE OBJECTIVES:

- To increase trainee skill at using the principles of clear writing.
- To measure writing clarity.
- To increase writing effectiveness by practicing brevity.
- To improve the overall impact through better organization and practical finishing touches.

COURSE DESCRIPTION:

- This course focuses on writing techniques and style. It is not a course in grammar.
- The course consists of six segments. Each segment includes specific writing techniques and skill applications.
- Course objectives are accomplished through sound/slide presentations, programmed instruction, writing exercises and group discussion.

Take Charge (5058)

LENGTH: 3 Days (1 day per week for 3 weeks)

GROUP SIZE: 12-18 Trainees per class

TRAINEE PROFILE:

AVP and Division level secretaries

COURSE OBJECTIVES:

- To introduce the professional secretary to the following management techniques:
  - Problem Solving
  - Time Management
  - Communication Skills
  - Organization Skills
  - Transactional Skills
  - Team Building

COURSE DESCRIPTION:

- This program puts great emphasis on how secretaries feel about themselves, their careers, their relationships with co-workers and their bosses. This program gets to the root of job satisfaction, how one can increase one's skills and capacity for greater responsibility. The program is customized in the classroom by experienced trainer-counselors who relate to real, not case problems. An atmosphere of trust is established wherein each participant learns to solve their own work-related problems using established management procedures.

COST:

Expenses for this course are approximately $200 and are charged back to each trainee's district.

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*Offered by American Telephone and Telegraph.

APPLIED TIME SERIES ANALYSIS THEORY AND APPLICATIONS OF BOX-JENKINS, STATE SPACE MODEL BUILDING AND FORECASTING (3-day)

The seminar is based on important recent developments in single and multiple time series analysis and forecasting. It includes in-depth study of the State Space Forecasting method, a new methodology which was judged "the best individual forecasting technique" in the ORSA/TIMS forecasting competition. This methodology allows accurate forecasts to be prepared from economic, business and financial time series data bases without the need for making prior assumptions or approximations about how the elements of the data are related to each other. The seminar will consist of two days of theory and applications. The third day will consist of a "hands-on" workshop where users will be able to analyze their own data and other economic and business time series using the State Space forecasting program. Seminar participants will receive copies of the 300-page "Handbook on Business and Economic Forecasting For Single and Multiple Time Series." *(NOTE: State Space Forecasting is a registered trademark of State Space Systems, Inc.)*

Who Should Attend

Economists, forecasters, those with data collected over time, those with a need to relate multiple time series to one another, planners, market researchers, statisticians, sociologists, psychologists, management scientists, and those from the health sciences. Participants should be familiar with the Univariate Box/Jenkins techniques or regression analysis.

Course Outline

- I. INTRODUCTION TO FORECASTING
  • Need for Forecasting • Guidelines • Types of Forecasts • Methods Available
- II. COMMON FORECASTING METHODS
  • Exponential Smoothing • Moving Averages • Differencing • Curve Fitting • Growth • Curves • Seasonal Cycles • Business Cycles • Rate of Change Models • Adaptive Control Models • Autoregressive Models • Box & Jenkins Models • Combinations of Forecasts • Financial Simulation Models • Survey Data and Expectations • Regression Models • Econometric Models • Leading Indicators
- III. TIME SERIES ANALYSIS
  • History • Properties of Time Series Values • Stationarity • Differencing • Deseasonalizing • AR • MA • ARIMA • Multiple Time Series
- IV. BOX-JENKINS THEORY
  • Identification • Estimation • Diagnostic Checking • Forecasting • Transfer Function Model • Applications • Intervention Analysis
- V. STATE SPACE THEORY FOR SINGLE AND MULTIPLE TIME SERIES
  • Historical Background • State Vector • Markovian Definition • Steps in System Modeling • Model Structure Determination • Model Order • Canonical State Vector Model • State Vectors for Multi-dimensional Systems • Canonical State Space Models
- VI. PRACTICAL ASPECTS OF STATE SPACE
  • When to Use State Space Forecasting • Application of the State Space Method • Control Options • Evaluation of a Model
- VII. APPLICATIONS OF STATE SPACE FORECASTING
  • Typical Applications • 1979 ORSA/TIMS Forecasting Tournament • T-Bill • Interest Rates • Bond Interest Rates • Feedback Effects and Kalman Filtering • Autoregressive Models • Utility Sales • Chemical Industry • Paper Industry • Gross National Product • Unemployment • Prime Interest Rates • Consumer Index • Inventory Systems • Commodity Forecasting
- VIII. COMPUTER WORKSHOP ON STATE SPACE FORECASTING
  • Forecasting Case Studies
- IX. SUMMARY AND REVIEW OF RESULTS

When & Where

September 22-24, 1982	Boston, MA	March 2-4, 1983	Washington, DC
October 25-27, 1982	San Francisco, CA	May 23-25, 1983	San Francisco, CA
December 1-3, 1982	Washington, DC	June 8-10, 1983	Washington, DC

Instructors

ALAN CAMERON is an acknowledged expert in the new field of state space analysis, President of State Space Systems, Inc., a consulting and computer software firm specializing in forecasting and control applications. Dr. Cameron has developed several successful computer programs for forecasting and model building. He has over ten years' experience in program development, systems analysis and management. He is a lecturer of Forecasting, Inventory Control and Production Planning at the University of California, Irvine, and previously served as Corporate Director of Systems and Procedures at Mattel, Inc. and Manager of Forecasting and Systems Development at Hunt Wesson Foods.

RAMAN MEHRA is President of Scientific Systems, Inc., Cambridge, Mass. Previously, he was Associate Professor of Engineering and Applied Mathematics at Harvard University (1972-1976). Dr. Mehra has written several papers and edited a book on System Identification and Time Series Analysis. He received the Eckman award of IEEE Control System Society in 1971. Dr. Mehra is the coauthor of the State Space Forecasting program which is currently being used by over 200 large organizations for business forecasting, budgeting and planning. He has organized and conducted previous workshops on time series analysis for both social and management scientists.

DESIGN AND ANALYSIS OF EXPERIMENTS (3-day)

This seminar is designed to aid researchers in engineering, as well as physical, chemical and biological sciences in planning and analysis of experiments. Efficient experimental plans are discussed for large numbers of factors and commercial package analytical techniques are displayed. Response surface design and analysis techniques are discussed in detail for experimental planning and optimum seeking problems.

Who Should Attend

Participants should include scientists and engineers who are interested in designing efficient experiments and who are interested in current techniques for estimating optimum operating conditions in the face of uncertainty. It is advisable for participants to have had training or some experience in statistical data analysis.

Course Outline

- I. ONE FACTOR EXPERIMENTS
  - A. Completely Randomized Designs
  - B. Blocking - Randomized Complete Block
  - C. Fixed and Random Effects Models
- II. MULTIFACTOR EXPERIMENTS
  - A. Models with Interaction
  - B. Factorial Experimental Designs
- III. FRACTIONAL EXPERIMENTAL PLANS
  - A. Fractional Factorials
  - B. Two and Three Level Plans
  - C. Available Software
- IV. DESIGNS FOR FITTING RESPONSE SURFACE MODELS
  - A. First Order Designs
  - B. Plackett Burman Designs
  - C. Saturated Experimental Plans
  - D. Sequential Experimental Plans
- V. SECOND ORDER RESPONSE SURFACE MODELS AND DESIGNS
  - A. Central Composite Designs
  - B. Box-Behnken Designs
  - C. Hybrid Designs
  - D. Blocking in Second Order Designs
- VI. ANALYSIS OF RESPONSE FUNCTIONS
  - A. Sequential Methods for Finding Optimum Conditions
  - B. Ridge Analysis of Response Surface
  - C. Analysis of Multiple Responses
  - D. Simplex Search Procedure
  - E. Discussion of Available Software

When & Where

Aug 30-Sept. 1, 1982	Washington, DC	March 28-30, 1983	Washington, DC
October 20-22, 1982	Denver, CO	June 20-22, 1983	Washington, DC
December 8-10, 1982	Washington, DC		

Instructors

DR. RAYMOND H. MYERS is a Professor in the Department of Statistics, Virginia Polytechnic Institute and State University and is serving as Director of the Statistical Consulting Laboratory at VPI & SU. He is a Fellow of the American Statistical Association and has served as a professor of Biostatistics at the Medical College of Virginia. Dr. Myers has had an extensive consulting experience in industry and government. Dr. Myers has published extensively in professional journals and has written two textbooks: *Response Surface Methodology* and *Statistics for Scientists and Engineers*, with R. A. Walpole.

DR. WALTER H. CARTER, JR. is a Professor in the Department of Biostatistics, Medical College of Virginia, Virginia Commonwealth University. Prior to joining VCU, he instructed in mathematics at Virginia Polytechnic Institute and State University; he received his Masters in Mathematics and Ph.D. in Statistics at VPI & SU. Dr. Carter has served as consultant to major industrial, financial and government organizations. He has published extensively in the Virginia Journal of Science, Journal of the American Statistical Association, Technometrics and other professional journals. He is currently involved in research using regression methods in the design and analysis of cancer combination chemotherapy experiments.

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Course Outline*

THE EXPANDING ROLE OF HUMAN RESOURCES MANAGEMENT IN TODAY'S ORGANIZATION

To create and develop effective policies and programs that attract, retain and motivate employees

- For maximizing employee's career development
- For attaining standards of performance
- For achieving the organization's goals

Social obligations/Personnel manager as catalyst/Environmental factors—physical and psychological/Development of manager/Employee interpersonal relationships

HOW TO RECRUIT AND SELECT THE RIGHT EMPLOYEE FOR THE RIGHT JOB

Recruitment: setting up a simple, effective system/Requisition procedures/Job and position descriptions/Internal search/Going outside etc.

- Recruitment Sources: advertising, agencies, executive search, career centers, professional associations, trade organizations, etc.
- College recruiting: selecting schools/training recruiters/campus visits/interviews on campus and in the company/placement/orientation/follow-up
- Recruiting specialized personnel: engineering, scientific, technical, and other professionals
- Executive recruitment

Employment procedures

- Screening: preliminary evaluation of applicant in view of job and position descriptions
- Testing: dexterity/attitude/interest/intelligence/using test results as part of employment techniques/minority testing
- Interview: planning the interview/determining objective/methods and techniques
- Hiring: checking references/final interview/decision/making the offer
- Medical department's physical exam
- Placement: orientation/role of the supervisors/"fitting the new employee" into the group/probationary period

Small-group project sessions

WHAT THE HUMAN RESOURCES ADMINISTRATOR SHOULD KNOW ABOUT EQUAL RIGHTS AND FEDERAL LEGISLATION

THE IMPACT OF THE BEHAVIORAL SCIENCES ON HUMAN RESOURCES MANAGEMENT

MAKING HUMAN RESOURCES PLANNING AND ADMINISTRATION AN INTEGRAL PART OF YOUR COMPANY'S OVER-ALL BUSINESS PLAN

Identifying key needs for today and tomorrow

- Blue-collar/white-collar/new skills for changing technology and environment
- Management personnel
- Scientific, engineering, technical, and other professional personnel
- Evaluating the changes in the labor force

Developing the over-all corporate HR plan on a 5- and 10-year basis: changing business conditions/Advancing technology/New products, markets/Mergers and acquisitions/Competition, etc.

Auditing your current staffing resources by categories: Hourly-paid/Salaried/Managerial/Engineering/Professional/Technical, etc.

Gaining top management utilization of HR planning in making business decisions

HOW TRAINING AND DEVELOPMENT PROGRAMS CAN HELP YOU MAKE THE MOST OF YOUR HUMAN RESOURCES

Management development for increased manager competence

- Linking business planning, organization planning, and HR planning to management development
- Techniques in management development:
  transaction analysis
  management by objectives
  opinion surveys
  assessment center concept

Training

- Developing supervisors to function as successful managers
- Training in management principles and skills: planning/organizing/delegating/assigning responsibilities/putting the plan into action/follow-through and control procedures
- Training for human relations
- Psychological aspects of motivating supervisors for improved job performance
- Special role of "action training": role-playing/business games/in-basket exercises/laboratory training/audio-visual techniques/programmed instruction, etc.

HOW TO COMPENSATE EMPLOYEES FAIRLY WHILE STAYING WITHIN YOUR PAYROLL BUDGET

Job evaluation systems: ranking, classification, point, and factor comparisons

Wage and salary program: Policies and procedures/Salary controls/Salary increases/Salary ranges/Pay differentials between hourly, salaried, and supervisory personnel/Day-to-day administration

Integrating salary administration and organization improvement

Executive compensation: Salary levels/Bonuses/Stock option plans/Other supplemental pay programs

Salary administration for scientific, technical and other professionals

Salary administration for sales and marketing personnel

Keep the total compensation program updated

Union relations considerations

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*Offered by American Management Associations.

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SETTING UP A COMPETITIVE EMPLOYEE BENEFITS PROGRAM

The benefits department in the corporate organization

Background of pension plans in the United States

Other employee benefits, i.e., death, medical, long-term disability, etc.

The balanced employee benefits approach

Integration of different benefit plans into the total package

Trends toward self-insured plans 501(c)(9) trust

Impact on union relations

Union settlements and other chain reactions throughout industry

Employees Retirement Income Security Act (ERISA)

Government activities: liberalized social security, medicare, extended employee benefits, etc.

New trends and developments: dental and legal plans, split dollar insurance, key man insurance, employee stock option trust, etc.

STREAMLINING PERSONNEL RECORDS ADMINISTRATION BY APPLYING EDP

Determining the need for EDP/Reviewing personnel information systems

Integrating the personnel data system

Data processing concepts

Skills inventory

Application of EDP to personnel and planning

HOW TO MAINTAIN HARMONIOUS LABOR RELATIONS IN YOUR COMPANY

Collective bargaining climate

Management rights philosophy

Major legislation covering labor law

How the company's collective bargaining objectives are formulated

- Selecting the bargaining team
- Preparing for negotiations
- Effective bargaining
- Writing the agreement

Day-to-day contract administration

The supervisor's vital role

HOW TO HANDLE NON-UNION PROGRAMS, PRACTICES AND LEGAL PROBLEMS

Reviewing company policies/Needs and satisfaction of employees

Legal aspects/Union organizing drives/Communications

WHO SHOULD ATTEND

The new personnel professional, the specialist who needs to learn more about other personnel areas, EEO and Affirmative Action specialists, job analysts, executives responsible for the personnel function, executives in companies establishing a new personnel department, executive officers who want to upgrade the personnel function, human resources planning and control managers, organization and management development professionals, labor relations executives, trainers, employment interviewers, compensation specialists, executives responsible for appraisal programs, executives responsible for benefits programs, employee counselors.

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☐ **November 8-12/Arlington**	**Meeting No. 8506JC-40**
☐ **November 15-19/Dallas**	**Meeting No. 8506JC-41**
☐ **Nov. 29-Dec. 3/Los Angeles**	**Meeting No. 8506JC-42**
☐ **December 6-10/New York**	**Meeting No. 8506JC-43**
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SECTION 2. CURRICULUM AND SKILLS

TASK FORCE REPORT

Participants
Chester Delaney, Chase Manhattan Bank
Audrey Jones, Long Island Lighting Company
Harvey Katz, Arnold Bernard & Company, Inc.
Virginia Thompson, Queens College, CUNY

DOES A COLLEGE EDUCATION PREPARE A STUDENT FOR THE WORLD OF WORK?

BACKGROUND

The Curriculum Task Force was initially given the following charge:

-- To explore the relationship between the needs of the business community and what is taught in related academic disciplines;

-- to analyze the gaps which might exist between the two;

-- to make recommendations on how students might be better prepared for gainful employment by enhancing, not compromising, the integrity of the liberal arts education.

At the first meeting, the task force chose to focus on a basic, continuing concern of business people: assuring that graduates of Queens College have, at the minimum, the ability to write, speak, and perform basic computations effectively. Although it was acknowledged that this is an old theme, it is, nonetheless, the single most immediate and also long-range concern of employers.

Related to this concern was the issue of academic counseling and guidance for college students. Who at the college knows whether or not a student is experiencing academic difficulty? Is there a relationship between academic difficulty and the level of basic skills achievement? How is student progress in the basic skills tracked and who has responsibility for recommending additional courses or strategies to strengthen the skills?

If, as participants on the task force assert, these basic skills are critical to employee success, do their companies (and therefore other companies) screen new candidates on these dimensions, or are decisions being made only on the basis of more technical or job specific skill dimensions?

The Task

If there is to be open, straightforward debate on issues of common concern, then both parties (in this case the university and business) need to provide sufficient information on what constitutes current practice in their respective domains and what is expected. The business representatives agreed to gather data on what, specifically, their respective organizations look for when they hire new people. The representative of the university was charged with gathering, synthesizing and reporting the current status of practice within the university regarding: entrance requirements; awarding grades and credit; a sense of the degree of faculty commitment regarding their responsibilities in the areas of basic skills preparations.

PRELIMINARY FINDINGS

A. A Summary Glance at Basic Skills Requirements at Queens College. This is not presented as an exhaustive review of college policy and procedures, but rather summarizes salient points:

1. Entrance requirements:

a. Queens College participates with all other colleges of the City University of New York (CUNY) in uniform entrance procedures.

Specifically, the minimum criterion for entering freshmen is a high school academic average of 80% or placement in the top third of the graduating class or combined SAT scores of 900.

b. A condition of registration, but not acceptance, at Queens College is testing and placement with respect to proficiency in the uses of the English language and basic math applications. All students entering for the first time are expected to demonstrate competence in written English on the basis of the CUNY Basic Skills Assessment Test. All students must complete English 1 (written composition) in their freshman year and must take English 6 unless exempted, and this can be taken no later than the end of their sophomore year.

c. Students experiencing difficulty in passing the Assessment Test are referred to the Academic Skills and Resource Center for appropriate remedial work.

2. The Assistant Provost provided some further information on the consistency and nature of assistance given by faculty and administration in the area of basic skills. He noted that some departments -- among them Biology and Accounting -- pay a great deal of attention to how well students are doing, specifically in the areas of written and oral communications. These departments maintain that competence in these areas is as important as the subject content.

It was noted that concern for the mastery of basic skills varies considerably from department to department on the campus, and that it remains virtually impossible to generalize about the competency of students unless some type of assessment were required of all students at the time of graduation. Because Queens College is a liberal arts college, because it has historically maintained high academic standards for its students, there is an overall assumption that "we can't be doing too badly with the basic skills component either."

3. Another area of concern to employers was the type and extent of academic, career, or personal counseling available to students. Severe budgetary cut-backs in the mid-1970's eliminated virtually all counseling. The College has been able to restore only a limited number of these functions; recognizes the problems and/or limitations which these conditions impose on students; and is taking steps to remedy the situation. (NOTE: Resources from College and external sources are being directed to these efforts.)

Career guidance and couseling is severely limited by budgetary constraints. An efficient and effective Placement Office provides a wide array of services within a very limited budget, but this can hardly be construed as adequate for a school the size of Queens College, nor does it address the problems of the nature of those under discussion in this report. It is not possible, for example, given the limited resources of the Placement Office, to screen students on basic skills readiness and preparation for the world of work.

The question remains, how does a college address the concerns of the consumers (employers) of their product (students) and assure quality? Most of the current literature on higher education and work linkages supports the need for liberal arts. Lynton (Lynton, Ernest A. "The Interdependence of Employment and Education," Boston: University of Massachusetts, 1982) mentions three reasons:

-- Corporations, like academic institutions, cannot function in isolation from their social, political and economic environment and cannot ignore historical and cultural factors. These matters will increasingly have to be considered even in relatively small scale decisions by professionals and managers;

-- the environment itself is becoming more complex and subject to change;

-- there is a marked trend toward decentralization of decision-making in management, as well as some movement toward worker involvement, so that the need for a broader understanding of issues will become increasingly pervasive at all employment levels.

From the college perspective, these issues and questions arise:

1. Can business and industry employers be more precise in identifying the sub-sets of skills which are needed in the basic skills areas? For example, ability to communicate in writing is insufficient. What kind of writing? Technical, expository, or creative?

2. Are some major companies, or even smaller ones, willing to work with the college to identify more clearly the set of basic skills (specifically, reading, writing, oral communication, computational and interpersonal/decision-making) which are necessary for employability? Test the readiness of students in actual work situations? The Cooperative Education Program provides a mechanism for looking at these issues. While students are on the work sites, there can be immediate feedback on how well prepared they are, where the lacks exist. This

provides two things: signals to departments of areas of weakness; opportunities to establish mechanisms for strengthening these areas. It should be stressed, however, that by the time this interaction takes place at least minimal mastery of the basic skills must have been acquired.

B. The View from the Employer Sector. Increasingly, newspapers and magazines are filled with articles which insist that new initiatives are required to create partnerships with and between business and the university. William Norris, chief executive officer of Control Data, quoted in a recent article in the Chronicle of Higher Education (Watkins, Beverly T., "Colleges Feel Increasing Pressure to Produce 'Work-Ready' People." The Chronicle of Higher Education, Nov. 17, 1982, Volume XXV, Number 12) proposes that corporate executives, as well as some public officials and educators, are concerned that people are leaving college today with an education that is increasingly ill-suited to management's needs. Many college programs, they say, concentrate too heavily on skills and not enough on problem-solving abilities.

Ideally, a college education should build upon or finely tune what are already substantial academic skills. The words "higher education" after all, imply a prior mastery of the fundamentals. Sadly, however, too many college students, and even some graduates, cannot speak or write effectively. Thus, it might be a good idea if form were stressed along with content in all college courses and that considerable required work in areas such as written composition, speech, and mathematics be given to all. With regard to effective expression, term papers and written and oral exams should be graded not only on what is said, or written, but on how it is done. What appears to be happening all too frequently is that students are graduating as engineers, teachers, accountants and financial analysts but not as truly educated men and women well versed in the mechanics of expression.

The business community and the university share alike in the responsibility for educating individuals. The university must graduate those competent in varied disciplines, including written and spoken English and computation as well in their chosen field. Students must be drilled on the need for precise language and thinking so that their presentations on the job will be clear, concise, and not open to needless misinterpretation. Business responsibility lies in insisting that such skills be taught. Colleges should not try to crank out finished corporate products. It takes years to become a competent financial analyst or accountant, for example. It cannot be done in four years of college. True, the initial seeds can be planted, but the maturation process takes considerable time.

Each of the companies surveyed for this project was emphatic that they want the candidates to have the ability to communicate and the potential to manage: they regard these as base-line requirements. Further, they all agree emphatically (as one participant reported, "to the point of being violent about it") that their in-place programs can, with relative ease, equip the trainees with the requisite technical expertise (for example, operations knowledge, programming, etc.). They cannot compensate for the lack of a general education or the absence of plain old reading, writing, and arithmetic.

In terms of writing skills, the college faculty must insist that students organize their thoughts and express their ideas coherently.

This might be done by mandating one, possibly two years of required work. Several courses each in written composition, literature, speech, math, science, philosophy, history and foreign languages might be included. Structuring those courses so that significant written work is given and, once given, is graded as much on form and style as on substance might work wonders. Second, subsequent electives, including courses in one's major, must similarly be graded on expression as well as on content.

Formal writing assignments should be frequent throughout. Several short presentations assigned during the term might be preferable to one extensive term paper at the end. Under such a structure, students would be able to correct their shortcomings in written communication along the way.

The college staff must speak as one voice in demanding high standards of expression. It is not just the function of the English department. Finally, one or more general competency exams might be assigned during one's college career, successful completion of which would be required for graduation.

Schools may well have gone overboard in emphasizing specialization, much of which might be the proper domain of business. Much of the precise business knowledge imparted in college can have short-lived utility in an ever-evolving field of financial research and analysis, for example. Correct and precise language and effective organizational, reasoning, and thought processes, however, are constants. These skills must be learned and used before imparting the specific job-related knowledge. Unless the former can be applied capably, advice concerned with the latter might fall on deaf ears. Let us not put the cart before the horse.

The depth of the problem can be grasped by understanding that students who cannot write at a college level typically have serious difficulty in articulating complex ideas, in expressing subtle relationships among abstract concepts. A controversial proposal under consideration at City College of CUNY, and recently reported in the New York Times, would put the institution among a select group working actively to promote the teaching of writing skills in subjects other than English. Other universities such as Michigan, Wisconsin and Texas are mounting similar efforts. (A copy of the article is appended.)

The employers represented on this task force likewise agree that the College cannot replace the business training program, nor should it try. It is easier for those doing the hiring to provide the job-related skills. On the other hand, business has neither the time nor the resources to teach entry level college graduates to communicate their ideas effectively. One company presented a summary statement of entry-level recruiting criteria. This statement is also appended. It is interesting to note that three of the company's recruiters accept liberal arts graduates, as well as those from business or specific skill areas. A pivotal ingredient appears to be the ability to learn, adapt, and adjust to the company environment and needs. Additionally, the one criterion for selection which stands out is the ability to listen. Other employers agreed that this skill needs to be added to the list of basic skills which should be taught at the college level. An additional skill is likewise indicated -- the ability to follow instructions.

SUMMARY STATEMENT - ENTRY LEVEL RECRUITING CRITERIA

The three areas specified below recruit college graduate entry-level personnel, primarily on campus, for placement in three company-wide functions. There is other recruiting done at mid-career levels or for specific departments.

AREA	BANKING DEPARTMENT	OPERATIONS	SYSTEMS
RECRUITS	Entry-level to be placed in various general departments: junior relationship managers.	Entry-level operations managers, to be placed in a variety of operations positions throughout the company.	Entry-level programmers to be placed in junior programming positions (applications or systems) in systems divisions located in each major business department.
G.P.A. MINIMUM	3.0	3.0	3.0
ACADEMIC MAJORS PREFERRED	Business, Finance Economics Liberal Arts	Business Industrial Engineering Liberal Arts	Business, Business-oriented data processing (minimal need for theoretical computer science), Industrial Engineering, Liberal Arts
TRAINING PROVIDED	The Credit Training Program--9 month classroom effort. Goal: the professional bankers able to assess situations and manage customer relationships.	Operations Management Development--2 year cycle of job rotation and training workshops. Goal: operations managers.	Entry-level Programmer Apprenticeship--3 month classroom program (if necessary), followed by a year of supervised job experience and training workshops. Goal: systems professionals who will be eligible for later management development
SELECTION CRITERIA (Over and above the basic requirement)	Communications skills: demonstrated ability to read and comprehend, write, speak, listen. Management potential: Interpersonal skills, demonstrated initiative	SAME as column I	SAME as column I

N.Y. Times, 10/26/82

EDUCATION

Colleges Weigh Expanded Rules On Writing Skill

By GENE I. MAEROFF

A CONTROVERSIAL proposal under consideration at City College of the City University of New York would put the institution among a select group working actively to promote the teaching of writing skills in subjects other than English.

Some faculty members at City College think it is time that writing were taken more seriously. One way to do it, they believe, is to require students to do more expository writing in all courses, not just in English classes.

Furthermore, on the assumption that students with inadequate writing skills are not ready to benefit sufficiently from their courses, these faculty members propose to bar students from taking core courses while still enrolled in remedial writing classes. Core courses are those required from a wide number of disciplines — mathematics, science, social sciences and the humanities — to insure the breadth of a student's education.

Similar proposals are gaining support at a growing number of colleges because of concern that an emphasis on the content of courses has left little room for stressing the communication of that content through writing.

The University of Michigan has developed a program requiring students to write extensively in at least one course in their major field of study during the junior or senior year. Michigan's program is being replicated at the University of Arizona and the University of Wisconsin at Stevens Point. The University of Texas and the University of Utah are weighing similiar plans.

At City College, if the proposal is approved at a Faculty Council meeting on Nov. 4, students in the College of Liberal Arts and Sciences would be required to meet a minimum writing requirement of 2,500 words in each of their core courses. Together, these courses make up at least one-quarter of the academic credits needed for a degree.

"The depth of the problem perhaps can be grasped by understanding that students who cannot write at a college level typically have serious difficulty in reading college textbooks, in articulating complex ideas, in expressing subtle relationships among abstract concepts," says the report prepared by the Ad-Hoc Commit-

Continued on Page C6

BEST COPY THE NEW YORK TIMES, TUESDAY, OCTOBER 26, 1982

Colleges Weighing Writing Requirements

Continued From Page C1

tee on Writing at City College.

About 75 percent of City College's entering freshmen, after taking a placement test, are required to enroll in remedial writing courses, which are largely devoted to the rudiments of language.

In one such remedial class last week, Allan Danzig, an English professor, was trying to teach his students that a sentence is a complete thought with a subject and a verb. Mr. Danzig stood at the front of a small lecture hall in which the paint was peeling off the ceiling and plywood had replaced broken panes in several of the windows. He began talking to the 20 students about a passage he had written on the board: "Going to the dance to dance."

"This has everything in it but a subject and a verb," said Mr. Danzig, a small, bearded man, who darted about the room, raising his voice as he tried to prod the students into discussion. Settling on the edge of a desk, he jiggled a stub of chalk.

"You have to have a verb in a finite tense," he said.

"Finite," he repeated. "That's bull. What does it mean in real talk? Why isn't 'to dance' a verb?"

Silence.

Finally, in a near whisper from a corner of the room came a voice, tentatively committing itself. "An infinitive," the student said with hesitation. Like a dentist attacking a tooth awaiting extraction, Mr. Danzig went after the voice, pulling forth an elaboration.

And so it went, a review of subjects and verbs and the circumstances under which they work together to create sentences.

By the end of the 50-minute session, Mr. Danzig had the students looking at a passage from Lewis Carroll's "Jabberwocky": "T'was brillig, and the slithy toves Did gyre and gimbel in the wabe," he read aloud.

"What part of speech is 'slithy'?" asked Mr. Danzig, launching a discussion in which he tried to show the students that once they were familiar with grammatical construction they could identify the parts of speech even in a nonsense poem.

Some professors wonder how much a student can gain from any course without at least some demonstrable knowledge of formal grammar and demonstrable competence in formal prose. Yet barring students from many courses until they have improved their writing proficiency could make it difficult for them to carry full schedules. Such a regulation would be no small matter at a college whose average student is 25 years old. Further lengthening the time required to get a degree might mean that some would simply never get them.

Moreover, if students were ineligible for other courses and had to carry part-time schedules, they would not qualify for the state's Tuition Aid Plan, which is awarded only to full-time students. "Many of our students are so needy that they can not afford to attend college without this assistance," said Alan Fiellin, dean of the College of Liberal Arts and Sciences and chairman of the Ad-Hoc Committee on Writing.

Nevertheless, according to Mr. Fiellin, there is "an awareness by many faculty members that we have to do more to promote writing and that the greatest progress can come from supportive efforts outside the English department."

Lawrence J. Crockett, a biology professor, is among those who maintain that a writing requirement is important in other subjects than English. "If you are a scientist or mathematician you have to be able to communicate," he said.

The difference between remedial students still grappling with fundamentals and students ready to write on a college level can be seen in English 110, the basic composition course at City College. Students enter the course either directly from high school or after successfully completing a remedial course.

On "Huckleberry Finn"

It was not the parts of speech that Barry Wallenstein's students were discussing in one particular English 110 class last week. Mr. Wallenstein had just graded a set of short essays on "Huckleberry Finn" and was discussing the endings in some of the papers.

"It's not a good idea to bring up an entirely new subject at the end of your essay, and a number of you did that," Mr. Wallenstein said.

But generally speaking there are no strict rules, Mr. Wallenstein said. "If your writing is skillful and coherent you would be surprised at what you can get away with." He read the ending of another essay in which the student had concentrated on Twain's use of irony. Very quickly, the students were citing their favorite uses in "Huckleberry Finn."

Such discussions as this, and the writing assignments that flow out of them, are what some professors at City College would like to see occur in many other kinds of courses.

THE CHRONICAL OF HIGHER EDUCATION

Colleges Feel Increasing Pressure to Produce 'Work-Ready' People

By BEVERLY T. WATKINS

Colleges and universities are coming under increasing pressure to establish partnerships with business to make sure their students receive an education that more nearly matches the present and future needs of the nation's work force.

Corporate executives—as well as some public officials and educators—are concerned that people are leaving college today with an education that is increasingly unsuited to management's needs. Many college programs, they say, concentrate too heavily on skills and not enough on problem-solving abilities.

Graduates, especially those who will someday hold top-level corporate jobs, must be educated more broadly, to enable them to analyze complex economic and technological problems and reach sound decisions, the executives say.

"We need to vastly improve our output of highly developed human capital," William C. Norris, chairman and chief executive officer of Control Data Corporation, told college presidents at a meeting this month of the American Association of State Colleges and Universities.

He called for "increased cooperation between businessmen and academics to determine what needs to be taught. We need more emphasis on technological literacy and on problem solving. We have to help graduates accommodate to business's need for analytical skills."

CONTROL DATA CORPORATION

Control Data's William C. Norris

"Striking up a partnership is the first order of business, for without it colleges and universities cannot gain a thorough understanding of how they can best respond to industry's needs for human

Continued on Page 8, Column 1

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CHRONICAL OF HIGHER EDUCATION cont'd

Colleges Feel Increasing Pressure to Produce 'Work-Ready' People

Continued from Page 1

capital,'' Ben Lawrence, executive director of the National Center for Higher Education Management Systems, said in a paper delivered at a recent meeting of the State Higher Education Executive Officers Association.

Colleges must also ''think about the durability and adaptability of the skills and attitudes that we provide to our graduates,'' Mr. Lawrence said. ''We have all seen the ill effects of overspecialization in every discipline.

''The need for specialization in a highly complex, industrialized society is obvious,'' he added, but ''we must set limits to the degree of specialization.''

Although it is by no means a new idea, the proposal for a business-education partnership to upgrade the country's ''human capital'' has received increased national attention this year, much of it from organizations of academic administrators, corporate executives, or both, who are concerned about ''producing work-ready people.''

Basic Reforms Are Needed

Some states have also picked up the theme. California's new Commission on Industrial Innovation, whose members include corporation executives and officials at public and private colleges, has just issued a report saying that ''basic reforms are needed in our education and job-training institutions to insure jobs with a future.'' The report includes 33 recommendations on ways in which educational institutions can help revitalize California's economy.

Many cooperative arrangements between colleges and local businesses already exist. Although no exact figures are available, it has been estimated that partnerships number in the ''hundreds, perhaps thousands,'' according to the Association Council for Policy Analysis and Research, which includes 22 national higher-education organizations.

Most of these are arrangements in which employers finance education or training to upgrade the skills of their workers.

A few formal partnerships have been developed in which the colleges ''refit their programs,'' as one executive put it, to meet the needs of the work force as seen by corporate executives.

The University of Maryland has established a corporate advisory board, composed of 12 members of the Division of Arts and Humanities at its College Park campus and 12 executives from businesses in the Baltimore and Washington metropolitan areas, to exchange ideas for revising the undergraduate curriculum so graduates will have a broader educational background.

At their first meeting, which included a discussion of the business curriculum, the corporate representatives ''told us we've got the wrong kind of courses,'' said Shirley S. Kenny, the provost of the Division of Arts and Humanities.

''We thought the businessmen would be interested in adding management, accounting, finance, economics, and other modules to the liberal-arts curriculum,'' she said. ''But they rejected that idea as too narrow and too limited.''

"Some educators object to adjusting higher education to industry's needs."

Instead, she said, ''the corporate members wanted business ethics, problem solving and analysis, and international business. They said students need to understand the language of business. They don't have to know how to make an entry, but they have to know the concepts of accounting.''

Ms. Kenny said the board's academic members ''had thought before we met that it would take a while to alleviate the distrust on both sides. But we were all on the same wavelength. We need the counsel of corporate members. There is no question but that we will make changes in the curriculum as a result of their ideas.''

Western Connecticut State College established several advisory boards of chief executive officers of companies in Danbury to advise its president and business-school administrators to help the college develop its business program into a separate school.

Advisory board members ''tell us what they would like to have in employees who come to them from our business school, and they suggest programs they think would be stimulating. We also ask them what they need: Do they need management-information systems or international education? Then we address those needs,'' said Stephen Feldman, who was dean of the business school until last year, when he became president of the college.

''Because members of the business community have been satisfied with our program, they are now sending their middle managers to us. This builds a deep relationship between the business community and the college.''

An absence of communication between higher-education institutions and the business community has led to a lack of understanding that has inhibited collaboration, both campus and corporate officials say.

''Establishing a partnership between higher education and the industrial complex will require effort, for we have not much experience in communicating with each other,'' said Mr. Lawrence of the National Center for Higher Education Management Systems. ''Tensions and suspicions will need to be overcome, and we will need to come to a greater understanding of our common needs.''

He pointed out that ''some educators object to adjusting higher education to industry's needs because this smacks of social engineering and manpower planning, a conflict with our basic commitment to freedom and individual choice.''

SECTION 3. THE IMPACT OF SOCIAL CHANGE ON THE WORKPLACE

TASK FORCE REPORT

Participants
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Tucker Clark, Psychologist/Social Worker
Ron Tauss, Equitable Life Insurance Company
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The assigned focus of discussion for Task Force III was the impact of social change on the environment of the work place, the effect on job performance, and the resulting need for supervisors, employers, and employees to learn to deal with such issues. At the same time the task force members explored the implications of significant social phenomena for college curricula and related activities.

The following pages outline some of the social phenomena that are significant for the workforce, the workplace, and the college. Some problems encountered in integrating newly hired graduates into the workforce are indentified, and two specific recommendations for systems of cooperation between business and the college are offered.

SIGNIFICANT SOCIAL PHENOMENA

1. An Aging Population and an Abundance of Early Retirees

Implications for Business:..Businesses will adjust marketing strategies; increase research expenditures directed to illnesses of the aged.

..Early retirees can be used to assist in peak period endeavors, a practice which benefits the business by maintaining a reserve of convenient part-time, knowledgeable employees. At the same time it benefits retirees by allowing them to supplement income and to continue work-related social relationships. Furthermore, it lessens the level of "retirement shock" for those who cannot cope with free time.

..Business must adjust its targeted hiring pool to include not only young, newly-graduated persons, but also mature persons who are ready for second careers, such as women whose children have reached independence. These persons, in large part, do not share the aggressive, get-ahead mentality of many of those first entering the corporation and, therefore, provide a stable, basically satisfied employee source pool.

..Training and start-up problems will vary significantly for such new hires who are more mature.

Implications for Colleges: ..More older students will return to study not only for re-education in new fields but also for personal development and "recreation." Those students entering the fields of business and industry need to understand the social impact of these demographic changes.

..Those students entering education fields may need to consider career directions that include development and teaching of education program for business and industry as alternatives to traditional primary and secondary school careers.

2. Single Parents or Both Parents Working

Implications for Business: ..The employer may be compelled to adjust both "normal" workday schedules and hours if this labor force is to be tapped effectively. In many ways peak or part-time schedules may allow the employer the benefit of keeping a talented employee available without destroying the family unit the employee is seeking to maintain. Limited schedules themselves require fewer fringe benefits and tax dollars to be expended.

..Employers may have to establish or at least support outside child care centers for preschoolers and/or after school children's centers and recreation programs for teens.

Implications for Colleges: ..Graduates who will themselves be managing both family and careers need to learn how to manage personal and family resources as well as mastering job-related skills.

..Faculty may be able to develop research that can evaluate varying patterns of "peak" or "part-time" scheduling in businesses as to the benefits, disadvantages and effects on business and on the worker in social, economic, political and other areas.

..New major or career areas may develop in areas such as directing, staffing, programming, evaluating child care centers for businesses for government or in non-public after-school recreational facilities for children of working parents.

3. Declining Child Population

Implications for Business: ..There is likely to be a scarcity of entry-level employees later in this century.

..Marketing techniques, products, etc., will change with changes in population "bulges."

Implications for Colleges: ..Has already produced and will continue a shift of college populations toward a more mature and life-experienced student body with different goals, foci, and range of values and attitudes.

..Few positions for new graduates in public school teaching.

..When school age populations increase again, as they will about 1987-90, and as teachers retire or leave teaching, means must be found to meet these supply-and-demand changes effectively.

..Possible solutions may lie with groups such as mid-life, career-change persons, especially women and early retirees.

..Colleges must find a way to determine when to start and/or stop encouraging certain specialized skills as the population shifts affect different areas of the economy.

4. Roles and Expectations of Women in Industry are Changing Significantly

Implications for Business: ..Career ladder patterns may change as a result of some women moving into and out of career areas in order to balance both family and career demands.

..Differences in the socialization of women may create differences in business environments.

..Transfer of workers may become more difficult as both men and women may have to consider the impact on the spouse's career.

..Women are more likely to enter the work force at different stages in their lives (i.e., post child-rearing, after widowhood or divorce).

..Child care needs and flex-time work scheduling may take on more importance.

Implications for Colleges: ..Traditional career advisement needs to take into account increased opportunities for women in traditionally male fields such as engineering, geology, etc.

..Course offerings in relevant areas may need to explore implications for both men and women of changing patterns and expectations.

..Faculty need to become aware of changes and trends and related needs for educational choices for women.

..College teaching practices may need modifications in terms of:

scheduling, i.e., time and duration of courses, holidays, etc.; expectations of student behaviors in regard to acceptance of authority of faculty; type of assignments.

5. The Responsibility to Educate and Employ the Handicapped

Implications for Business: Business leaders may need to be educated concerning facts, fantasies, and fictions regarding the handicapped, especially in regard to ethical, legal, cultural expectations and the realities, limits, and potentials of various kinds of handicapped people.

..Business leaders need to look at a variety of handicaps and the potential for integrating workers with differing handicaps into the work force together with the appropriate support systems, training programs, etc.

..Both employers and workers need to be educated to raise consciousness concerning the handicapped.

..Employers may need to be trained concerning ways to use the skills handicapped persons possess rather than to deny employment on the basis of a disability.

Implications for Colleges: ..Special adaptations may have to be made to the physical plant to accomodate handicapped students in laboratories or other facilities, particularly those related to career areas.

..Knowledge of and adaptations to ethical, fiscal, legal factors will be required.

..Career counseling may be necessary to assist handicapped to assess career potential in various areas.

..Faculty and students may need to be educated to raise consciousness concerning handicaps and handicapped.

..Faculty may need to integrate content into relevant course work concerning the rewards and liabilities for employers of the handicapped as well as for the handicapped and their peers.

..College personnel with expertise in special education may serve as resources to business.

..Extra collegiate resource people who are expert in the areas regarding the handicapped may be needed to study, propose, plan, implement, and evaluate modifications of college goals, programs and policies.

6. Substance Abuse

Implications for Business: ..EAP (Employee Assistance Program) involvement may grow or develop in different directions.

..Need for business personnel to know needs, nature, costs, benefits, problems, and rewards to business of various kinds of EAP. EAP's originally set up to handle only alcohol and job problems have expanded when farsighted companies have seen their economic as well as personal assistance. Unless firmly established in a company, these programs are all too frequently cut in bad economic times. A company's policy on the well-being of its employees will be strongly reflected in its policies on substance abuse and ways of dealing with personal problems on the job.

..Attention should focus on work changes that make work situation less dehumanizing and on social forces which affect substance use, especially those in the specific vocational field.

..Recognition of the on and off nature of some abuse and laws and the company's responsibility in interpreting them.

Implications for Colleges: ..More education may be needed concerning substance abuse.

..Need for crisis centers that are accessible to students.

..Potential for integration of case studies into relevant course work.

..Possible use of college specialists in needed research, planning, program development and implementation of programs.

7. Use and Potential Abuse of Computers

Creates a need for greater awareness of and sensitivity to the problems of invasion of privacy, "control" of society by maintenance of information, manipulation of markets, etc.

Implications for Business: ..Need to know the legal aspects of protection of employee records, of customer or client information.

..Ethical questions need resolution in regard to issues of privacy.

Implications for Colleges: ..Need is for more than computer skill or literacy courses , but also to explore legal, economic, ethical, and value implications of computer use.

PROBLEMS IN INTEGRATING NEW GRADUATES INTO THE WORK FORCE

Employers frequently articulate some of the problems they encounter in integrating newly-hired graduates into a business environment. Among those problems most often cited are these:

1. Reputed inability of graduates to:
    a. transfer skills learned in an academic setting to the work place;

    b. function effectively as a part of a team.

2. Both

    a. the lack of practical training in many discipline areas,

    and

    b. the problem of being over-specialized.

3. Bilingual populations as both workers and customers.

4. Need for education to be an on-going process rather than coming to an end after undergraduate or graduate study.

TWO PROPOSALS

Many of the foregoing problems are those which the workplace and the college academy must address together. The initial step in bringing these two groups closer together requires the development of systems of cooperation. This report proposes two specific systems. Many others are possible and a more comprehensive but not fully developed outline of a model for such cooperation is appended to this document.

Among the areas of potential cooperation that should be explored is that of research. Faculty, graduate students, and undergraduate students may find in all of the aforementioned social phenomena, rich territory for a variety of research at many levels that would both benefit industry and enrich the teaching mission of the college through the incorporation of relevant and current knowledge, particularly in the social and applied sciences.

The proposals for specific cooperative programs are these:

1. An updated version of educational apprenticeships is proposed for students specializing in appropriate disciplines, (i.e., those that

normally lead to jobs outside the higher education umbrella). The apprenticeship should involve a semester of work experience with pre-selected employers.

2. An "adopt-an-employer(s)" plan for each department, which would come about through contact between the academic staff and employer management.

The Apprenticeship Program

The Student Would Learn:

--to apply skills from an academic environment before his/her life and salary depended on it;

--to cooperate with other people in generating a desired output as a team effort;

--what real business problems are like;

--what behaviors are frowned upon and ignored;

--what work related to his/her major area of specialization is really like;

--he/she will be in a better position than other applicants if the cooperating business has openings since the employer should be able to evaluate the student's real aptitude for this business situation.

The University Would Receive:

--feedback as to relevancy of curriculum to the real world as perceived by the student returning from apprenticeship;

--lower level connections with the "adopted" business concern through the student's supervisor, rather than through the higher level manager who would have initiated the cooperating relationship;

--potential contacts for research; resource persons to contact for other college-industry related possibilities.

The Employer Should Receive:

--a continual source of presumably educated and motivated new employee hires;

--probable new looks at old business problems by probing minds that are used to asking why something is rather than simply accepting what it is;

--increased difficulties in carrying out first line supervisor responsibilities. Supervising new hires is seldom easy and the attention they require takes up a good deal of time if integration into the work force is carried out properly;

--feedback loop and visits by overseeing instructors would cost supervisors time. A written report most likely would be required and would consume additional time.

Some Organizational Questions and Problems

At what level should the student work? Cooperating at too high a level might place the student in an organizational slot higher than that he/she is prepared to deal with or one which is a level higher than that to which he/she might return as an employee. (One is reminded of the comment often made that graduates of certain MBA programs make great chief executives but generally mediocre middle managers!)

The successful development of this concept requires careful resolution of the above question as well as questions regarding the awarding of course credit; the involvement of faculty or other staff in supervision of students; or the need for preparatory, concurrent, or follow-up seminars.

It would seem advisable to pilot such a program with several volunteer departments. Their efforts would be monitored, evaluated, and revised so as to develop a model for implementation in other departments. Ideally, the departments to participate should be those with minimal direct occupation or career tracks, so that creative or non-traditional relationships between the College and industry can be established.

Adopt-an-Employer

As a means of establishing another kind of long-term interaction between departments and industry, we propose an adopt-an-employer approach which would most likely come about through direct contacts between academic staff and employer management. Initially, as a pilot, this relationship would likely be with one firm. With a large employer it may be appropriate to establish the relationship with a subset of the organization. (It is difficult to imagine dealing with ITT or GM on corporate level). The concept requires further development. An attempt should be made to vary employer relationships among college departments or even within departments so as to avoid a "one company town" condition so far as cooperating employees are concerned. Also, faculty and student access to a variety of companies may enhance research for the faculty and employment/apprenticeship potential for students.

In Conclusion

This paper raises more questions than solutions. It points to a variety of social phenomena that affect the workplace and its managers and workers, the college and its faculty and students. Simply injecting "relevant" content into appropriate college curricula does not address the continuing and changing nature of the impact of social change on the workplace. A means must be found to establish an on-going connection between the college and the workplace since each party has so much to gain from the others.

Two specific programs that would provide such an interaction have been proposed. The final page of this report presents a comprehensive model for a variety of interactions ranging from the tight, curriculum focus to a broad focus on themes, with steps in between consisting of an apprentice or other field experience via a variety of special projects.

COMMUNITY-COLLEGE INTERACTION SYSTEMS

(developed by Larry Brody)

"Tight" curriculum focus

Academic Units

1. Departmental
   - a. course offerings per catalog descriptions
   - b. community advisory councils
   - c. specialist research into community aspects of the discipline
2. Interdepartmental
   - a. joint courses
   - b. study committees
     - (1) social trends, issues
     - (2) special problems
     - (3) exploration and analyses of course offerings to assess values and relevance to:
       - (a) community needs
       - (b) identified trends
         issues
         problems
   - c. special projects
3. Divisional (c) above
4. Departmental staff as resource specialists for
   - a. industry
   - b. government
   - c. community organizations
   - d. specially needy groups: handicapped
     underemployed, etc.

Extern office

1. Field work re course content implications, & applications in community.
2. Cooperative education program
3. Community services by:
   - a. Faculty specialist
   - b. students as:
     - (1) aides-paras
     - (2) volunteers
     - (3) trainees - OJT et al
       - (a) day care facilities of working parents
       - (b) day care facilities of parents involved in college or community self-development activities.
       - (c) guides, pages, interpreters in governmental offices
         hospitals
         cultural resources: museums
         galleries
       - (d) aides in community campaigns and programs
         United Way
         Parent Education as
         the aging population
         nutrition
         preventive medicine
         family life ed.
         V.D., T.B., Diabetes, heart, etc.
         Sex equality

Special Projects

I. Student research re specific courses, as:
   - a. extant job opportunities related to specific courses
   - b. Occupational needs related to courses but not now treated in content.
   - c. Developmental needs not now focussed in course offerings.
     - (1) community
       labor
       management
       equality race
       sex, etc.
     - (2) Individual
       physical health
       stress vs. distress
       adult ed
     - (3) Status of movements, programs, etc.
       Examples:
       - (a) what is local status of employee services, programs
         - a' morale
         - b' recreation
         - c' alcohol, drugs
         - d' counseling
           finances
           health
           family
           psychological needs
           etc.
     - (4) Vocational Education of children

B. Faculty Research as above and/or special faculty research interests related to business and industry.

Broad learning focus

Theme focussed efforts

1. values
   - a. [exploration
     [identification
     [assessment of consequences
   - b. [workshops
     [institutes
   - c. media releases
   - d. articles for popular media
   - e. scholarly literature
2. Identifying and assessing trends in the "real world" (as in 1 a-e above.)
3. Maximizing human potential:
   - a. Personal development
   - b. Staff development
     - (1) supervision
       theory
       practice
       problems
       potentials
     - (2) training to develop potential
   - c. The self-help networks

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SECTION 4. NEW CURRICULUM DIRECTIONS

TASK FORCE REPORT

Participants
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INTRODUCTION

The charge of the task force was to consider the relation between the general curriculum of Queens College and the general needs in the workplace, and to discuss ways in which the match between the two might be improved.

Given that there are elements common to the liberal arts education and the needs of the workplace, what is the process? Where is the Queens College curriculum deficient in developing the skills necessary to the work process in the business community? And how can these deficiencies be addressed? Furthermore, how can colleges and representatives of the larger community collaborate in these matters of mutual interest.

This report begins with an assessment of the context: the College, its student population, its academic mission; the world of work, and the general capacities needed for effectiveness and success. Part 2 is a discussion of curriculum issues and the basic considerations to be kept in mind. Part 3 begins to consider some general ways in which the academic mission of the College and the needs of the workplace can be reconciled, and Part 4 outlines a number of recommendations directed at students, faculty, administration and employers.

After the initial briefing with other task forces on September 9, 1982, the group met on several occasions to determine the form and substance of this report, preparing and presenting ideas, drafts, and critiques of suggestions. The report represents a consensus of the views of the whole group.

THE STUDENTS: WHO THEY ARE, WHERE THEY COME FROM, WHERE ARE THEY GOING?

Several recent surveys have shed light on the composition of the student body, both at Queens College and in the City University as a whole. About one-third of the 3,923 high school graduates who applied for admission to Queens College for the Fall semester 1981 came from 9 high schools situated in the borough. Major "feeder" schools include both public and parochial high schools and the specialized schools in the New York City system. Applicants for the Fall semester 1981-82, came predominantly from the high schools of the borough, with a small but significant number from other high schools in New York City and Nassau County.

The grade averages of these applicants were generally high (see Table 1) with an overall average score of 80.23.

TABLE I. High School Averages of 3923 Applicants (Including SEEK) Accepted for Admission to Queens College, Fall Semester 1981-82.

Range	Number	Percent	Cumulative
95-100	73	1.86%	1.86%
90-94	558	14.22	16.08
85-89	942	24.01	40.09
80-84	1,260	32.12	72.21
75-79	657	16.75	88.96
70-74	262	6.68	95.64
65-69	91	2.32	97.96
60-64	17	.43	98.39
Below 60	63[a]	1.61%	100.00%

[a] Includes foreign students and others whose grade average could not be determined.

Source: Office of Pre-Admission Services, Queens College.

As far as the background of the student body is concerned, Queens College has taken an increasing number of minority students over the past decade. The number of matriculated first-time freshmen, expressed in percentages of the usual Affirmative Action categories, for the years 1969, 1974 and 1980 is given in Table II.

TABLE II. Ethnic Composition of Matriculated First-Time Freshmen, Expressed in Percentages.

Category	1969	1974	1980
White	88.3%	71.08%	69.3%
Black	7.4	15.3	13.3
Hispanic	1.7	5.8	8.7
Amerindian	0.2	0.2	0.4
Oriental	1.7	2.8	8.3
Other	0.7	-	-

Source: Office of the Assistant Provost for Academic Affairs, Queens College.

This table shows that the number of non-whites among matriculating first-time freshmen has almost tripled, rising from 11.7% in 1969 to 30.7% in 1980. It should also be kept in mind that the category "White" also includes a number of students, e.g., from India, who might also be considered "minority" students. Because of transfers, differing rates of graduation, etc., these figures do not represent the ethnic composition of the college as a whole. The figures for the Fall semester 1980 are : White, 77.5%; Black, 9.9% Hispanic, 6.8%; Amerindian, 0.6%; and oriental, 5.2%.

There are no data available which might shed light on the career of a Queens College student after graduation. However, a follow-up study of June 1979 graduates of all CUNY colleges one year after receiving their degrees was published by the Office of the Deputy Chancellor for Institutional Research and Analysis in October of 1981. In their study, entitled "Outcomes of Educational Opportunity: A Study of Graduates from the City University," authors Barry Kaufman, James Murtha, and Jerzy Warman have brought together statistics and other information which give some indication of the prospects for CUNY graduates after they complete their course of studies. While their findings may not apply in every respect to the graduates of Queens, they will at least convey some impression of the possibilities which Queens graduates can look forward to after receiving their degrees.

For one thing, students graduating with a bachelor's degree from CUNY quickly found employment. After one year, 72% were employed full-time, and 8% part-time. Of those remaining, 13% were enrolled in full-time post-graduate educational programs. Only 5% were seeking work unsuccessfully, and the remaining 2% were unemployed because of family responsibilities and other personal reasons. (Source: "Outcomes," p.48.)

More than half the graduates who responded in this study were students in liberal arts programs. The precise breakdown is presented in Table III below.

TABLE III. Bachelor Degree Program at the Time of Graduation of June 1979 Graduates.

Major Field	Percent
Arts and Sciences:	
Humanities	14.2%
Natural Sciences	10.7
Social Sciences	28.1
(Liberal Arts 53%)	
Business	17.0
Health Programs	9.2
Engineering	3.6
Public Services	14.7
Unknown	2.4
	100.0%

(Source: "Outcomes," p.51)

The choice of occupation made by graduates from CUNY is highly pertinent to the question of the relationship between the university and the economic life of New York. The occupational categories in which graduates with a bachelor's degree in June 1979 found employment are provided in Table IV.

TABLE IV. Numbers and Percentage of 309 June 1979 Graduates With a Bachelor's Degree Employed in Various Occupational Areas.

Category	Number	Percent
Financial	66	21.4 %
Clerical	49	15.9
Education	39	12.6
Managerial	25	8.1
Sales	21	6.8
Health	20	6.5
Computer Science	20	6.5
Public Service	19	6.2
Social Work	17	5.5
Engineering	12	3.9
Media and Publishing	12	3.9
Technical	9	2.9

Source: "Outcomes," p.53.

Even though some of these positions are almost certainly outside the New York area, given the students' backgrounds and the nature of some of those occupational areas, e.g., financial, media, which are located in New York, the bulk of them are likely to be in the city. In this way, CUNY contributes to the economic and cultural life of New York.

To keep the contribution of the City University in perspective, it might also be noted at this point that, in June of 1979, CUNY colleges awarded almost 11,000 baccalaureate and associate degrees -- this constitutes 53% of all the baccalaureate degrees and 75% of all associate degrees granted by all the institutions of higher education in the city of New York. Moreover, 31% of the baccalaureate graduates and 47% of the associate degree graduates were minority group students.

While not as closely or directly related to the economic life of the city, the number of CUNY students enrolling in post-graduate studies represents a further increase in the intellectual and professional potential of the area. The fields of study chosen by baccalaureate graduates in June 1979 are presented in Table V.

TABLE V. Educational Choices of June 1979 Bachelor's Graduates.

Enrollment Choice	Percent
CUNY Bachelor's Program	1.0 %
Other Bachelor's Program	.8
CUNY Graduate Program	14.8
Other Graduate Program	18.4
Other Training	11.4
None	53.9

Source: "Outcomes," p. 61.

To sum up, the City University of New York in general, and Queens College in particular, continue to draw their students from the entire spectrum of high school graduates in New York and surrounding areas. Not surprisingly, of course, a large percentage of applicants to Queens came from the surrounding neighborhoods -- a situation which obtains to some extent for every CUNY college. The high school average of the typical applicant, including applicants through remedial programs such as SEEK, is about 80; two-fifths of the applicants to Queens in September 1981, however, had averages of 85 or higher. Queens thus balances access with quality.

Eight out of ten CUNY baccalaureate graduates move directly from college into the job market; most of the others continue their education on the graduate level. The occupations chosen are in many cases those in which New York plays a conspicuous role. In this fashion, CUNY returns its graduates to the city and state which support it, and makes a significant contribution to the economic and intellectual life of New York.

The Mission of the College is indicated by the following extracts from the Undergraduate Bulletin (p. 12):

> "We learn in order that we may serve." It is the mission of the College to carry out this responsibility of providing learning opportunities to the community, taking the word "community" in its broadest sense...
>
> This is a teaching institution devoted to providing to college students an understanding of themselves, of society, and of the physical world, as well as giving them the ability to act on that understanding.
>
> For this reason, the College places high value on the ability of students to use language with ease, skill, and precision; on their ability to think logically and analytically; and to read critically...
>
> The widest range of educational opportunity is provided to help students develop a core of secure individuality; to become aware of and to understand their goals, motivations, and desires; to heighten their aesthetic sensibility and broad human sympathy; to increase their capacity for independent judgment, for effective expression of their own experience, and for perceptive interpretation of that of others; to acquire specialized and pre-professional training as desired; and to function fully in society...

The curriculum is the means of achieving these goals. After a period of concern to reduce standard requirements and increase flexibility, policies have changed. Undergraduates entering as of September 1981 will have to fulfill College-wide academic requirements which include certain courses in the major areas of study (humanities, social, natural, physical sciences) as well as to meet certain minimum standards of performance.

CAPACITIES NEEDED IN THE WORKPLACE

During our meetings, it was stressed that there is a procedure which is associated with success in the world of work. Major steps of this procedure include:

setting goals;
establishing plans to meet these goals;
gathering information while working to carry out
  the plans (feedback);
modifying goals and plans;
knowing when the goal has been reached.

These phases may be viewed from different perspectives. A global level provides a perspective on what is gnerally expected in the work environment. On a more specific level, a series of sub-goals may be developed to meet the global level. Thse will be the particular tasks or work assignments necessary to fulfill the overall objectives, and may be termed "enabling" levels.

In our discussions, the college experience was seen as playing an important role for the student in this procedure. In forming good work habits, it develops the ability to work under pressure to meet deadlines, and to achieve a disciplined approach to work. At the same time, initiative, creativity, and the desire to maintain high standards are encouraged. For these reasons, a successful academic career has obvious relevance to work after college. The following paragraphs spell out some applications of these principles.

Setting Goals: Employers and employees both need to be able to state what they expect of a liberal arts education. Once students have reached the workplace, they should be able to define the nature of their work and understand what to expect from their jobs.

Establishing a Plan to Meet These Goals: People in the work environment need to be able to map out specific steps that need to be followed to reach their goals in the work environment.

Getting Feedback: People in the work environment need to be able to acquire feedback information to determine if they are following their plans to meet their goals. They need to be self-motivated, but also need to elicit and accept criticism from others.

Modifying Goals and Plans: People in the work environment need to be able to adjust their plans to meet their goals, or change the goals if they are no longer appropriate.

Knowing When the Goal Has been Reached: People in the work environment need to know when goals are met, and when to move on to new goals. In so doing, they must make judgments, evaluating their own (as well as others') performance.

At each step of this procedure, workers must have certain "how to" skills. These include:

How to Find Information: To be successful in the academic world or in business, you must know how to gain access to sources of information. These include libraries, museums, professional societies, and experts. New technology such as computer retrieval systems and video ibraries also need to be mastered.

How to Determine what Information is Relevant: With the large amount of sources and information available, people in the workplace need to be able to identify the sources and the data that are relevant to their goals.

How to Use Information: People in the work environment need to see how information relates to the task at hand and how to draw conclusions from it.

How to Communicate Information: People need to know how to communicate their findings in both written and verbal formats.

How to Work Effectively with Others: "People Skills" are crucial in all aspects of work: for soliciting information and communicating it to others. Sensitivity to the different roles one fills at work is equally important: as a team member, in leadership or supervisory roles, and in a dependent role.

CURRICULUM ANALYSIS

The preceding section leads directly to the question: what elements are common to the curriculum demands of the College and the general capacities required at work beyond college? Our response is that, while some are emphasized more in the one setting and less in the other, the following are common to both:

Identify and work with a model or mentor;
Set objectives;
Plan;
Collect relevant information;
Determine priorities;
Make decisions;
Implement plans;
Communicate in appropriate and effective form;
Evaluate, obtain feedback, improve.

Certainly, acquiring knowledge, research, and study; logical thought in decision-making; planning the use of information; and written communication, are common to both. There may be less emphasis on finding a mentor, effective counselling; aspects of planning interpersonal skills; oral communication; evaluating, getting feedback, and having the opportunity to improve.

All of the above are involved in the broad skill and attitude areas that we see as critical to successful participation in business and in other sectors of employment, as well as fundamental to any liberal arts education. We are, for the moment, not specifying particular areas of knowledge that may be useful or necessary for successful participation in the world of work, for example, computer literacy, numeracy, and other subjects for which instruction is available in undergraduate education, continuing education, and in-house programs of business and other firms.

It is our view that, when considering the general education of college students, no matter what specialization or discipline may be the objective, and regardless of the course or subject-matter area, the elements listed above must be attended to. From the discussions within this task force and with others, the following points should be addressed at several levels: the particular course offering, the individual's chosen course of study, the program in a given major or specialization; and, the general education component of all student programs:

Is sufficient emphasis given to a task, project, or paper?
Is the level of complexity of the task sufficient to permit students to develop good planning skills?
Is there opportunity for collaborative (team) work so that the students may develop "people skills", i.e., the ability to participate with others in complex tasks?
Is there adequate opportunity to develop written and oral presentation skills?
Are performance standards clearly presented, justified, and maintained?
Are students provided with sufficient feedback about their work and given the opportunity to improve?
Are students helped to discover their need for a mentor/model, and are they helped to find an appropriate one?

Different sectors tend to view curriculum in very different terms. Faculty members conceive of subjects or disciplines as blocks of knowledge and intellectual skills needed to manage that knowledge. On the other hand, workers and employers outside the academic community tend to focus more on particular skills and information, as well as the intellectual, social, and personal attributes that are generally valued in the workplace. Thus, a particular body of knowledge and skills is important to the extent that it is directly job-related, and education in general is important only to the extent that it, too, relates to developing those desired attributes. These two vantage points make curriculum discussion difficult between the two sectors. Many faculty members are inclined to see any discussion of subsequent (non-academic) work as "vocationalism," as well as an incursion into their traditional territory; managers tend to avoid any discussion of the college curriculum and of in-service development of their workers that smacks of "the academic," and to be more comfortable with the idea of training in particular skills and sets of information.

The task force was impressed by a document that went far to bridge the gap between faculty and employment perspectives on curriculum.* It describes a number of standard college majors or educational programs, then lists, by general categories, the marketable skills that may be gained through study. It serves as a glossary of terms expressed in two languages, that of the college and that of the marketplace, and indicates to the reader (the job candidate, the employer, and the faculty member) which skills or sets of skills in an academic program relate to what potential jobs. While there appear to be certain inconsistencies in the document's approach and some debatable types of marketable/intellectual skills, nevertheless, certain categories reappear constantly, and go far to confirm the conclusions of this task force: the list of "capacities needed in the workplace" (end of Part 1), and the observations with which this section (Part 2) opened.

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*U.S. Department of Labor, "College, Knowledge...and Jobs." March 1981 (mimeo.)

Based upon the descriptions of the academic major, and the list of marketable skills derived from those studies, the following kinds of employment options are common to graduates of most subject areas:

Educating, counseling, helping people;
Researching, collecting and analyzing data;
Selling, buying, appraising;
Interpreting information and/or policy, advising, influencing;
Planning;
Implementing plans and administering projects;
Measuring, mapping, assessing;
Managing and conserving resources;
Communicating: writing, speaking, editing.

The D.O.L. document from which this typology has been drawn evidently requires further work (it is identified as a draft, and it would be desirable to discover what work has been done since its date of distribution, May 1981). From the perspective of this task force, it would be desirable to group the potential jobs and work-tasks using some of the categories that we have identified. (see Parts 1.b., 2):

Even in its present form, however, two uses for the document are suggested to test the validity of the analysis and to generate informed discussion and action (see below, Implementation E).

METHODOLOGIES

External factors have always influenced the academic curriculum. However, any discussion of the subject must acknowledge that curriculum is traditionally regarded as the special prerogative of the College faculty, frequently specified, as in the case of CUNY, in institutional regulations. Faculty members and the departmental organization exercise substantial control over what is taught and how. Moreover, as the departments in various disciplines often prepare students for different goals, quite different needs must often be reconciled, e.g., the biology department provides instruction in its field for liberal arts majors who are not biology majors, as well as for pre-med majors and potential graduate students who will be candidates for the Ph.D. Under these circumstances, formal changes do not take place easily or quickly, and major changes are often outcomes of protracted discussion and compromises.

But the attitudes, skills, and capacities noted above are not necessarily linked with any specific subject matter. The task force noted that, for the most part, they could be (and often are) developed in the course of studying almost any subject in the College curriculum. For these reasons, therefore, we have directed our attention to the teaching process and not merely to course content as means of achieving the desired outcomes.

The following points emerged from a series of discussions about methodologies which have been used, and could be extended.

A. Coherence: Students are taught and tend to perceive their studies in discrete blocks (courses). How can the curriculum in any course, discipline, and overall program, enhance connections, e.g., between history and science, mathematics and philosophy, physics and politics, etc., as well as between the liberal arts and their applications in the world of work?

B. Assignments: teaching methodologies that enable students to work effectively after graduation should be encouraged. Specific suggestions include assignments in every course of study at all phases that require:

task definition (i.e., planning);
case studies;
presentation skills (both written and oral)
teamwork (emphasizing participation and leadership)

Students should be prepared to perform increasingly complex tasks as they proceed through their respective programs both within the liberal arts and the specialized components of their studies. They should reach a stage when they can, over the period of one semester, plan and execute a project in which they must make decisions, collaborate with others, and report back. This can be achieved in different ways depending on the subject matter and/or the instructor's inclinations. The important thing is that it be done consistently and repeatedly.

C. Goals and Evaluation: clear goals need to be developed and communicated to students, as well as the means for achieving them. While these may be well-defined in terms of subject matter, they should also be stated in the more general (or work-life-related) terms used in this report. Part of the process is to evaluate progress towards these goals. Without regular and periodic feedback at various steps in the process, students may lack the information, the incentives, and the means to perform better. The grade at the end of the course may come too late to help in the learning process. Academic counseling by faculty is crucial in this.

D. Communication: employers, workers at all levels, and the public at large may not know what goes on in colleges; though they may have experienced it, they may be unaware of the differences among institutions, and of the changes over time, as well as how college preparation may relate to their own concerns. Students and faculty periodically need the opportunity to expand and update their information and insights. Relevant expertise is always there; it is not always accessible. We are not here talking about job-counseling, always complicated by the problems of rapid economic changes. But rather we are addressing the need for continual communication between faculty and business people, and students and business people, in order to achieve at least the following:

confirmation of the general and particular capacities needed in the workplace;
demonstration that the College curriculum attends (or does not) to these;
instruction for students about the realities of the working life, not merely the conditions for entry, but also for survival, success, and advancement;
discovery of new and emergent fields of study in particular subject matter areas;
institution of college-wide core programs in new areas as part of general or liberal arts curriculum.

IMPLEMENTATION

The concluding section offers a number of recommendations for serious consideration by various groups of people. Some are rather specific, others more general ideas. Some have been discussed in some detail; others not so. Some are directed at college administrators, others at faculty, and yet others to the business community, though it is believed that representatives of all sectors can provide helpful information and guidance. While they all flow from the discussions contained in the earlier parts of the report, they are merely examples of what might be done to deal with selected considerations. They are not by any means complete.

A. Problem: The business community, in which many graduates find employment, requires that entering personnel have a background in certain areas which are normally taught in college. How can the college make suitable adjustments in its curriculum, so that its graduates may be better prepared for the positions which they will assume?

Proposal: A committee on curriculum development might be established which would arrange discussions and conferences between members of the business, professional, and academic communities in certain fields. The purpose of these conferences would be to apprise the academic community with the needs of the business community, and to acquaint the business community with the circumstances which obtain in the academic world. Through this exchange of information, the academic community would learn of the most recent developments in business and the professions, and could evaluate its course offerings to see where these might be changed. The business community and the professions might gain some insight into the circumstances of the academic world, i.e., student body, personnel, and finance, and might make adjustments in regard to both its standards and its internal educational programs. The effect of this exchange of information would be a closer "fit" between requirements of the business and professional communities on the one hand, and the characteristics of the college graduate on the other, without time-consuming structural alterations in either area. It is suggested that such consortia may be arranged around the college divisions, and/or disciplines, or groups of disciplines.

B. Problem: Employers and executives know better than others some of the curriculum needs of their workers and can provide certain kinds of education/training more effectively and appropriately on the job. Smaller companies may know what they need to upgrade their employees, but are unwilling or unable to make necessary provisions. College faculty, on the other hand, know better than others (and have special skills) in other relevant areas. How can educational effectiveness be maximized in both settings?

Proposal: To establish at Queens College a unit that would perform such functions as an information clearing house, a broker, a continuing discussion center for faculty and off-campus persons in matters concerning pre-employment and in-service education. Some specific examples follow:

i. Employers and employees will confirm the importance of what are traditionally viewed as the outcomes of a good liberal arts college curriculum (e.g., good communication, information-gathering, evaluation of data, decision-making, independent judgment, etc.). Their continuing input on how these goals are (or might better be) achieved could be valuable, as indeed would be their support.

ii. College faculty are experienced and skilled in creating a syllabus, teaching it, evaluating the outcomes, and revising the course. Companies with a sense of their educational needs would benefit from the advice of the practitioners.

iii. Faculty include a great variety of experts in many areas, involved as part of their professional work in research. Both their knowledge and research skills might be made available to "company planners" through some systematic arrangement, especially for smaller companies with limited resources (e.g., in regional or local economic studies, environmental impact studies, analysis of social trends, etc., etc.). The proposed unit would organize such efforts as: needs assessment, identification of priorities, matching needs and resources, information exchanges, etc.

C. Problem: Students are often unaware of the options available to them, of the real nature of specific positions in the workplace, and of their own capacities. How can the college reduce personal and institutional wastage of resources, and make the best use of the skills and knowledge available to it for continuing guidance of students?

Proposal: To engage students, faculty, alumni, and others in the business world in periodical discussions of possibilities, as well as in actual advisement work in new and concerted ways. Among the specific points that should be considered are:

i. What relevant models of regular counseling and performance review are there in other organizations? How might they be adapted to the college, using the services of counselors, alumni, business persons, and faculty?

ii. Counseling requires information about career requirements and opportunities, as well as individual self-assessment. To what extent can (or should) the college attend to these, and in what ways?

D. Problem: Workers need "people skills." They have to work effectively with peers, supervisors, and people they supervise, in small and large groups as well as with individuals, in leadership and other roles. The college curriculum makes no systematic provision for this in content courses.

Proposal: a course or sequence of courses in Human Relations. A program offered by the Department of Educational and Community Programs may serve as a model. The objectives are stated as follows:*

1. To learn about small group dynamics and how the relationships among members affect group processes.
2. To gain insights into one's own way of interacting with others.
3. To improve communication skills.
4. To study group processes such as leadership, problem-solving, and decision-making.
5. To learn to construct and use scales for recording and analyzing behavior in groups, and to apply these data to specific construct systems.
6. To learn techniques for introducing change in small groups and organizations.
7. To acquire skills related to functioning as leaders and change agents.
8. To plan and implement intervention strategies designed to achieve change in groups and organizations.
9. To learn the effects of different organizational structures on human behavior.

The subject matter should be pursued through actual participation in small groups as well as through reading assignments and classroom discussions. Students should also participate in a group experience in an off-campus setting.

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*Selected extracts from actual course/program description.

The subject matter should be pursued through actual participation in small groups as well as through reading assignments and classroom discussions. Students should also participate in a group experience in an off-campus setting.

2. Problem: There is a substantial lack of information about the match between the college liberal arts curriculum and the needs of the workplace. Moreover, lack of communication encourages a sense of separateness which obscures the commonality of interests and the interdependence of the two sectors.

Proposal: To use the D.O.T. document cited above in a number of ways to remedy the problem.

i. In order to test the validity of the analysis and the transfer between academic and marketable skills, the several skills, the several sections (majors/programs) could be distributed to the appropriate academic departments for their study and comment, to selected group of non-academic persons, to an ad hoc committee comprising both sectors. A revised section for Queens College would result.

ii. The same procedure(s) could be used to generate discussion, to exchange and expand views. The value of the activity may be substantial for faculty, for potential employers, and possibly most important of all, for students planning their programs and their entry into employment.

iii. A third possibility, offered perhaps a little more tentatively, is to use the document, or rather the list of general categories somewhat selectively, as a catalog or inventory of what faculty have to offer, and what industry/commerce want and need, in preliminary form. Faculty could use it to identify what they want to improve, add, omit (and to plan ways in which this can be done with the help of non-faculty where appropriate). Employers, staff development persons, and others off-campus could use it to heighten their consciousness about what is done in a college program to identify faculty and student skills that they could use.

SECTION 5: EDUCATION AND THE WORLD OF WORK, CONFERENCE PANEL PRESENTATIONS,

December 10, 1982

Saul B. Cohen, President, Queens College/CUNY

There is a basic dichotomy between the university and society. The university is designed to be a place for careful deliberation and analysis. It is supposed to discover and teach basic truths. Society, on the other hand, moves quickly, often with little time for contemplation or understanding of larger issues. There is some good reason for maintaining this dichotomy. Good research, basic research, often takes years to evolve. It is most appropriately lodged in the university. And research that responds to today's needs and is applied in nature may at best become hopelessly out of date tomorrow and, at worst, be erroneous. Such research, which is "at risk" fulfills important needs and is especially appropriate for social, economic, and governmental institutions. So the university has good reason to try to maintain some of that particular dichotomy as a way of not only assuring research with enduring results, but also freedom of scholarly inquiry, preserving traditions of the past and maintaining a world view.

Now, having said all of this, I don't mean to suggest that universities should abandon all involvement in applied research, for such research is necessary for the university's efforts to serving the public good, and to learning from the outside environment. I am simply saying that the institutuional structure within which we operate, and the Geist of the university, makes that particular part of our mission much more difficult to achieve than the first part of the mission. So, I suppose the job of the university administrator, getting back to what will we do to implement change, is to help shape an environment in which teachers and researchers will want to be moved to change. The best way one can do this is to create a network of persons out of which interaction can take place. And I think you are doing so with this project.

I must tell you that I am gratified to look around the room, and am really quite surprised, to see so many faculty from so many different schools here, perhaps talking to each other, through a dialogue with industry in a way that you do not normally talk to one another when you are sitting by yourselves. We are looking for better ways of maintaining this kind of relationship--of building up the beginnings of this network, and we are getting some ideas.

The concept and practice of the "loaned executive" from business to government is popular and useful. There is not, however, enough of the loaned executive from business and government to the university. And the concept of the loaned scholar from the university to business and government is still in its very, very early stages. It is a concept that we ought to try to expand upon. We have to find better use of mechanisms that are already at our disposal to realize the benefits of interaction.

Some of this interaction can be promoted through better feedback mechanisms with internship programs. When a student goes out to intern, whether it is a school or business, normally there are two alternate models--neither of which is satisfactory. Either a faculty person will do the supervision on site, and probably knows nothing about what goes on at that site, because that supervision will come from what the faculty person thinks ought to take place on that site, not actually what takes place. Or the reverse, where supervision of the student is the responsibility of on-site manager, but faculty have little awareness of what and how the student interns have learned. In neither case, but especially the latter, is much taken back to the university scene.

So that is something that we have to do a lot more of...we have to close this particular feedback loop. Moreover, what a student learns in the workplace needs to be exchanged with other students in the classroom in order to enable the class as a whole to act as a change agent with respect to the teacher. While this is a complex task, it nevertheless is of the utmost importance, and I am pleased that some of the workshops have dealt with the problems.

Now, can we in the university do a better job involving ourselves in the external environment? Yes. First of all, the university internal environment has great advantages for everyone. It does permit us, some of us, to remain on the cutting edge of certain research problems that few working in industry are able to do. I might say, obviously, that the research environment at Bell Labs or Lockheed or Dow Chemical enables the scholar there to pursue basic research in the same way that the scholar can pursue it at the university, but even there, there are constraints that are not to be found in the university, particularly for those working with doctoral students, who can be turned loose in almost any scholarly direction. Graduate students' research has a very high benefit to cost ratio. It involves a time immersion not normally found in industry or government. And such research can be carried on at small institutions in the university setup, whereas, of course, only the very largest corporations can come close to it. There are some interesting examples that one comes upon, including an arrangement by one university with several different industries to assign one faculty member to each industry for the purpose of keeping particular corporate laboratories informed of research materials which came across the faculty member's desk which might be of utility to the lab. This is not a consulting assignment, but purely an information exchange mechanism: "you might be interested in this particular article; I heard about a piece of work that's going on in such and such."

The trade-off is that the industries supplement faculty salaries, and, in addition, if the industry wishes to follow up a line of information, it may hire the faculty member as a consultant. So it is very vague and amorphous and yet provides good communication links.

Other examples abound. New York State is seeking help from university faculty in promoting greater efficiency within New York State government. Believe it or not, while faculty do not live in environments noted for efficiency or productivity in the normal sense of the word, they do know certain things about efficiency theories, and if they are thrust into a different environment, they may be able to apply that theory very usefully. Universities can help government as well as teach about government.

When the university sends its students to outside firms, it can learn things that it otherwise does not know. We have experienced this in some departments where firms reacting to the kind of education going on in our College have said, "It might be fine education, but somehow it doesn't really help us when we look for entry-level people. Your students aren't well trained for our particular needs." This has started a dialogue that doesn't necessarily change our educational program, but at least encourages us to step back and ask ourselves whether we are missing a particular direction or a particular trend.

This leads us to a discussion of education versus training. There is a distinction between the two. That is obvious. Some sectors of the university do a much better job with the former than with the latter. You might make the argument that some of the professional schools where students learn how to work under pressure, to deal with real world problems, such as business, medicine, law, social work, library information and education are as much into training as they are into education. In liberal arts institutions and in graduate schools of arts and science, our mission is education with very little training. It has been customary for the university to focus on education at the undergraduate level, and to pursue training at the professional school level. At least this was the custom until the last decade or so.

Now there is immense pressure on the traditional liberal arts four year college and the graduate shcool of arts and science to engage in training as well. The pressure comes from students perhaps even more than from the work-place. How can we respond intelligently without throwing out the essence of a liberal arts education? Can we introduce training by following such normal practices as making reading assignments without tight schedules, and by maintaining a learning environment that encourages intellectual shopping, forays and random searching that may go on for a semester, a year, or even four years? This is a system in which the precision and deadline of the work-place is absent, and where presenting materials clearly and succinctly is not always held at a premium. This issue of "task orientation" is something that we have to interject into our educational process and not say simply, well, that's something to wait for professional life and professional training. I think it can be done without violating our educational values, because it may be a matter of style as much as of substance.

Problem-solving is a different issue. I think that in educating our undergraduates well we should be educating them to deal with problem-solving, and this is not something that need be limited to applied fields.

Finally, there is the general ideal where the university does have to be more active: in searching out opportunities to apply its teaching and research lessons to the needs of the outside world. I do not think that this is only the responsibility of a public university to serve the general public and society, along the venerable land grant university model. This has to do with the responsibility of the university to its students and to its faculty, that is, to its responsibilities in conducting the learning process as a whole. And if we accept this the university's educational responsibility, then it doesn't matter whether the university sector is private or public. The responsibility is there, and we in the university have to meet it in the best way we can.

Walter Blass, Director of Strategic Planning, AT&T

As you have just heard, I joined this august group almost a year ago, and then left it in March, and I'm absolutely delighted with the progress that you all have made since I left. Clearly, it has been a help rather than a hindrance for me to go away. And, thanks to Mary Randall, I was very pleased in receiving a package with three of the four Task Force reports, and seeing how willing each of the Task Forces was to address itself to the needs of today's undergraduate in terms of tomorrow's society.

I am particularly excited about an idea reflected in one of the workshops: a need for overview -- the sense of enabling a young person today to get a feel of how different disciplines hang together. What does palaeontology have to do with the way my business or my government works? What does the concept of musical scales and the development of music in the western world have to do with how you design a computer program? What is the relationship between culture as it is taught by the anthropologists, and the difference between International Telephone and Telegraph, and American Telephone and Telegraph? It turns out that these skills are absolutely essential in learning something about how the world is put together: distinguishing differences, seeing similarities and being able to ask the right questions so that, hopefully, you find the right answers.

Secondly, although I don't think the word "literacy" was used very often, in its broadest sense that was what was being emphasized in the papers, and I was delighted to see that. I think there is a sense in which today's undergraduate, as was remarked in one of the papers, suffers at the high school level from not having been taught how to read -- whether it is in English or in Spanish, or in math or in science or in anthropology. How do you look at a movie and read people's faces? Read people's bodies? And read what happens in these movies? How do you do the same thing in terms of a text with poetry? How does that relate to being able to read a position paper and to smell a rat? And I suggest to you there are lots of aspects in which good literacy and reading poetry are going to be extremely helpful in teaching you how to read a position paper by the President of the United States in which the question is ducked!

Lastly, one or two of the papers spoke about the necessity for "hands on" experience. One of the things which I think is too bad, is how many young people no longer are able to see either their father or their mother at work. Children in the eighteenth century had no difficulty. If your father was a bosun on a ship, you came up in that tradition. You became a cabin-boy at twelve, and you saw a good deal of what was involved in running the deck department on a ship. And if your mother was a nurse, you knew about her being called out to help people in the middle of the night in a difficult birth, or to succor the dying. Children today, many of them are taken away from their parents or vice-versa and do not have that experience of being able to touch and feel and smell and be involved. And I think your papers address themselves to that issue.

There were many excellent suggestions of communication between the new two worlds of C.P. Snow: the Liberal Arts education world, on the one hand, the business and high technology world on the other. But in order to be of some value to you rather than to massage your egos, I am going to challenge some of the root assumptions that were in these papers, and I am going to take the risk of alienating you.

When I was in the Federal government, my supervisor announced to me after about two years that she thought I wasn't really cut out for being a civil servant, because I had a tendency for free-wheeling. And she said that is not appreciated in government. So with that tendency still very much in effect eleven years later, I am going to take the risk of not only alienating Saul Cohen and of alienating my dinner host tonight, John Seley, but of alienating the academics among you, of alienating the government people among you, and even the businessmen among you.

Let me raise three questions: Does the competency of your faculty exist sufficiently in the context of values, skills and traps of either business or government -- the world of work outside of academia? This question, it seems to me, is vital if your suggestion is to be not only workable, but fruitful, that the locus of the internships to be held are here at Queens College rather than there in business and government. Likewise, it is critical if the faculty of Queens Coleege are to consult and to solve business problems.

Second question: Does business give academia a mixed message with respect to the kinds of people and the skills of the people that it wants to work with? There was a quotation in one of the papers from William Norris of Control Data in which he said some wonderful things about the liberal arts. And yet, I don't think that there is anyone among you who hasn't run into the student who came back from an interview and said, "Well, I went to the personnel department at New York Telephone, and they couldn't care less that I was an English major. All they kept asking me about is 'are you trained in Fortran? Can you do chi-square statistical analysis? What experience have you had on the PDP11?' And all kinds of dumb questions like that!"

So it seems to me that there is a problem on our side in business. that we are giving you a sort of Catch-22: Yes, we want you to deliver wise graduates and, by the way, also be competent on five programs in languages and three generations of computers.

Lastly, and this is where I really feel on edge, are the cures to what ails the relationship between the world of work and education in the curriculum, or are you proposing (you will excuse the expression) a new "sex manual" for a lousy marriage?

Now let me answer some of these questions in terms of specifics. Perhaps by throwing these fairly free-wheeling and challenging remarks out, when we get to the question and answer period, you can take me on. And I think I can come up with some of the specifics from which I drew these questions.

On the issue of faculty competence, I know very few faculty people at Queens College. And it is certainly possible that your faculty, as a group and as individuals, differ very strongly from other four-year college faculty people that I have known. But let me tell you just some very brief items of where some of the competency issues have come up.

For example, I have been engaged in running a program of teaching Ethics for Businessmen, under the sponsorship of the Society for Values in Higher Education, for the past four years. And the critical dimension that we were trying to look for was to bring an emphasis out of a standard philosophy department or theological seminary. together with a practicing business-person to lead, co-lead the particular sub-group that was composed of business people. Over and over again, the business people either in the halls or, eventually, in the seminar room, took the emphasis on and said, "Look, you just don't know where it's at! Alright, let me tell you a story about how I got caught in the system. And you tell me your version of this story. Give me proof that you understand the imperatives that I have to work on. If you convince that you understand the Scylla and Charybdis that I'm living with, I'll take your advice. But if you don't understand where I'm coming from, I'm not going to listen to you." And that ability of the faculty person to say, "I know exactly where you are, and I'll give you five instances of where I think I see a creative way through the dilemma that you're explaining to me." That's competency.

We used a group of Harvard business faculty as consultants to New York Telephone, in the early seventies, when we were trying to put together a corporate planning department. Over and over, I ran into the situation of where I clearly was getting a policy line that that individual could not translate to an operational level. It was good advice, if you could follow it, but they weren't prepared to get down to the level of operations. "This is my pathological relationship. I can't change the president of this company. I can't change the operating vice-president of this company. I can't even change the executive vice-president of my group." Somehow, that's when silence came over the gentleman's line.

On the other hand, I met an English professor at Furman University in Greenville, South Carolina, who had been teaching writing skills at some of the local firms, and he was being asked back not only to teach the higher levels the same principles of how to examine their subordinate's paper, how to get crystal language in the memorandum, and, where necessary, to be fuzzy, deliberately fuzzy, but still have a thrust to the papers that they were writing, if they wanted to be a little bit more political in their approach.

Lastly, I have just returned from Greensboro, North Carolina, where I am on the board of Guildford College and talked with some faculty people who had been out in local industry teaching remedial math, because that is where the problem lies. You cannot teach advanced programming languages unless you have a base in the mathematical ability of the people who are doing it. And these people are going out and teaching, in effect, algebra and solid geometry as a preparation for the calculus that had to be understood.

So, what I am saying is: the capability in academia is there, but the proven experience of working in that business context is at times debateable. And the specific cultural knowledge from within a given firm, or within a given industry, I think, is usually asked for. So that is part of the problem that I think has to be addressed.

Now, what specifically could people at Queens College do? I think one of the things is to get out of these four walls and get into business and government. Use the contacts that you have in this room. Go out and spend a week sitting, listening. If asked, try a hypothesis, try a break-through idea. Help a group to brainstorm some of its problems. But, get out. Try. Go in.

I have had a number of people visiting at New York Telephone for everything from a week to a month. We called it an internship; we called it a visiting professional. There are all kinds of names for this. But I think people got to like the academic person, and found that he or she had something to say. The Woodrow Wilson Foundation in Princeton has been trying to sponsor humanists in business. And some of them have, in fact, been placed. And I think these people have come back with a real appreciation, and sometimes a rather negative appreciation, I might add, of the degree to which a corporation is willing to live with humanistic values.

Now, let me move to this question of where the internship should be. That's one particular place where I really take issue with the papers. I think you have got to run your internships out there. The faculty person will learn as much or more than the students, because the faculty person is more receptive, more capable of knowing the differences in that environment from what exists in academia. But I think you have got to put the locus of that internship in business.

Now, let me speak a little bit more on the mixed messages. I think we in business suffer from some of the same kind of schizophrenic view that you can pick up in business. William Norris, indeed, is very concerned about management succession. He sees a whole tribe of people in his corporation, most of them engineers or math or science trained people, who do not possess the breadth that he is looking for for senior management, and for that matter, for the succession to the five or six top jobs. At that point, he says, "Oh God, I wish we had more Liberal Arts graduates." But I am willing to bet that his own personnel department is undermining him, and hiring these people. To be sure, the personnel people have a very valid argument. Use the numbers that I am familiar with at AT&T. We have 28,000 people in management. You don't expect me, as the head of personnel, to hire two-thirds Liberal Arts graduates, when my entry-level jobs require specific competencies, specific skills to make anybody useful the first six months that they are on the job. If, in seven years, they make district level, which is the median we expect if they are to make district level, it is nice that they have had this broader education on the chance that they become one of 260 division level managers, or one of 80 assistant vice-presidents, or one of 22 officers; it is even better if they have all that breadth. And, in fact, we have sent people to a variety of "charm schools," ranging from Swarthmore to Harvard Business School, the Sloan Program, the Aspen Institute, to try to broaden them. But, we're talking about a population of 28,000 shrinking to 200 or shrinking to 20. No wonder the personnel department has such a myopic view of what entrance level college graduates hould have. But that is a problem that we need to straighten out. But I think you can help us sometimes by saying, "Hey, you know, Business, get your act together!"

Lastly, let me speak to this problem of the curriculum. My sense is that the paper that was written on the curriculum assumed at least four things: that departments are based on disciplines -- Economics, Psychology, English, and so forth. It assumes that the basis for promotion has to do with some publishing, certainly a Ph.D. and, preferably, good teaching. But in many of the higher education institutions, I've noticed, the teaching, because it is so difficult to measure, kind of takes a third place to the others. Tenure, I suspect, is a problem here as it is in other schools. You have a large proportion of your senior faculty tenured, and what do you do when, in effect, the marketing thrust of the college has to move away from departments that are highly tenured and towards departments that do not exist, or that do not have the requisite skill? There are AAUP rules. I know that you can work them through, but the blood-bath that is required to do that is not going to turn Saul's hair back to blond!

And lastly, there is an assumption in the whole curriculum reform paper that you can teach from textbooks. Ask yourself that question. Have you ever tried to do without textbooks in your particular field? What would it be like if you indeed had access to a Frizart machine for every student in your class? Would you be willing to do without textbooks, and just go by, "here's a piece of paper," "go to the microfilm," "read this"? You know, the kind of in-box that most of us in business have to live with. It's a problem.

I would suggest that rather than these four things, you require the following elements: integration of disciplines. Your students need to be competent in speech, in writing, in math, in science, across the spectrum of disciplines, but most of you, as the paper rightly points out, expect that the English Department is going to cure their bad writing habits, and it is not the responsibility of the Engineering or the Accounting Department. To say, "This is incredible. I can't make sense of this. This isn't even a grammatical sentence." Or, vice-versa, that someone writing a history paper doesn't bother to add the election columns to see whether there was or there was not fraud. If there were more votes than there were live people, that suggests that you could have used a little bit of math in figuring that out.

We are sending people out selling teletronic PBX equipment who require a scientific knowledge of how digital and analog electronic switching works; who are required to be able to do discounted cash flow and a variety of other mathematical and statistical analyses of what the client needs. It requires that they submit a proposal which has to be written in an attractive, creative, if you like, but persuasive English. And they have to make an oral presentation to whatever the level in the firm is that requires approval. That is quite a combination, but that is what we are looking for. Hence this "integration of disciplines."

Secondly, I think it requires a distinction between conceptualization, which is needed, and also, operations, which every one of these young people is going to have to go through. We are not going to allow them to conceptualize in the business, until they can prove that they can operate. It is wonderful for you to know all about renewing principles of airports, but if you can't fly the airplane, I don't want you as a pilot.

Hands on learning vs. book learning. All of us in business and government have seen the eager and sometimes a little bit arrogant young person come in and say, "Sure, I can do this," and fall flat on his or her face. Only Monday, I had a former professor of economics come in, allegedly to help me clear a questionnaire that had to do with environmental scanning, and after twenty-five minutes informed me in no uncertain terms that I didn't know what strategic planning was, but he did. And he proceeded to tell me. And it was a wonderful lecture, straight out of the textbook, and I am wondering what his first experience is going to be when he meets Lee Oberst, who is the characteristic, if you'll excuse the expression, "400 lb. gorilla," who runs the entire operation of New York City, as far as New York Telephone is concerned. He is powerful, self-taught, he's never set foot in a four-year college (even a two-year college), and he is a brilliant analyst, a brilliant manager, a combination of a Theory X manager who gets results, and who inspires a tremendous amount of loyalty from his people. He would be something else again if he meets that economics professor.

Something has been said about mentors and teachers. I'd like to suggest that there is an important difference. A teacher, like Julia Child, will show you how to cook the recipe. A mentor will take you to dinner at Caravelle and then say, "By the way, how would you go about making that sauce?"

Experiential progression is my last requirement for young people going into business. Fred Kaplan, who was the Chairman of the Board, when he came into that office in 1956, had a suggestion that every new person who came into management ranks should instantly be thrown into the line for six months, just to learn. Don't send him to school. Don't socialize him in the corporate ways. Just put him out there on the line. I have a friend who was straight out of Smith and became a Chief Operator, and had 280 average and sub-average Americans working for her, and learned what the difference was between the peer-group that she was used to and the peer-group that they were used to. And that was her first hurdle. She managed it, very well indeed, but she is ready with a lot of stories about what it's like to start where you are coming out with a wonderful AB degree, and finding out what you have to do to get enough people to man the board at 9:00 Monday morning.

The distinctions that are drawn in several of the papers about Goal Setting, it seemed to me, are way above the level of what your prototypical graduate is going to encounter. My father once came up with a very different progression, which I've remembered, because it fits much more accurately my perception of what is required. The first step is to *produce*. Never mind the goal. Never mind the policy. Never mind, even, whether it is right or wrong. I asked you to do something, do it, and do it quickly. Don't argue with me. If you can survive that step, then let's concentrate on quality control. Now that you know how to make 145 widgets an hour, let's talk about the reject rate. And, indeed, your first supervisory level usually has to do with what to do about the worker, or the line that has too high a reject rate. So *quality control* is the second step.

The third step clearly has to be the issue of *supervision*. How do you supervise? How do you lead? How do you motivate? How do you get people excited about what they are doing rather than to see it as absolute dullsville? And that in turn, goes to the question of whom do you hire? How do you develop them? What is required to make a promotable individual out of just a very good individual? And that, in turn, gets you into *policy issues* across the enterprise. And, lastly, very few people are encouraged, or demanded to *set goals*. It's these ideas that I want to leave you with and then, hopefully, if we have the time this afternoon, I would be perfectly willing to respond to your questions and comments.

Adrian J. Grossman, Vice President, New York Stock Exchange

First of all, I'm very pleased to be here. I am acquainted with one graduate of Queens College -- my wife, and several faculty members, but I really know nothing about the College as such. It is presumptuous of me to try to indicate what the University should be doing. I'd like to present some thoughts that somewhat parallel Walter's and, in a way contradict them.

First of all, it seems to me that we are living in an age marked by the intrigue of technology. I've been working with youg people for twenty years, but I am still thinking of World War II. There are, as John Seley coined the phrase, "techno-enthusiasts," and we old fogies tend to be "technophobiacs." So we have a clash. Now just think about the fact that when I was at MIT, a graduate student, we used a slide-rule, and if you took Heat Transfer with McAdams, the person who learned to manipulate that slide-rule most quickly and most adeptly got the highest grade.

Does anyone here own a slide-rule? (response) Good! Do you ever use it? (Response) Not recently, right? You know, it just doesn't exist. And my guess is, in five years, every six year old will be adept at handling a personal computer. They may not own one, but they'll be adept at it. And a personal computer will do all sorts of tasks. He won't have to know what a Linear Program is. He'll press a button, and Bingo! the computer will produce a linear program. And he will be intrigued by this. He will be much more intrigued by producing a multi-colored graph using IBM then he will in understanding what underlies that graph. And I see that as being the driving force, and I think Walter is very correct when he says, "What does industry want?" Unfortunately, that's what they want. Because, unfortunately, the leaders of industry are not interested. They are not really looking for a future. They are looking for immediate pay-off. As long as they do that, they see the cheapest way to their linear program is to hire someone who knows how to press that button. That person may not be able to understand the problem, or really resolve the problem, but they, too, are intrigued by the technique, by the technology.

I'll give you an example. Having been educated in chemistry, physical chemistry and chemical engineering I sort of got bored with that and went into management science, operations research. Now if you recall, operations research, which, I guess, if it was invented by anyone, was invented by the British in the Second World War. They designed army patterns, they designed convoy ships. And what was it? It was a group of Oxonians, maybe a few at Cambridge. They had biologists, historians, psychologists, sociologists, economists, even a chemist or two -- educated people. Liberal Arts people who came together and said, "Let's identify the problem, and let's pool our understanding to solve that problem." At GE, we broke from the Operations Research Society of America, which concentrated on technique, because we saw the problem as being to understand, identify the problem first, and then to deal with the problem of technique. Find out what the problem was, and then maybe invent our own technique.

Well, that is what we do today in OR. Today in OR, OR is limited. It has courses. Technique courses. Many schools, even in Princeton they have computer science courses, oet us say, and that is a nice technique for what's wanted, but it must be taught in the proper way, to understand that it is a technique, but that technique isn't the important problem. The important problem is identification of the problem first. And then perhaps you can use a technique. And perhaps you have to invent one. That's important.

So OR today, instead of dealing with what we used to call the "Theory of Business," "Strategic Planning," (and Peter Drucker was working with us, and others like him), instead of doing that, well, they solve inventory control problems, they solve practical problems. Well, that's nice. But the point I'm trying to make is, is that what we really need in industry? I say no, because frankly, in ten years, someone will press a button and solve that. What is needed in industry are people who can think; and who will go ahead, and who will get down on the floor in a fight and understand what the problems are, and then work from there. Because if everyone just comes in at the top, what can they know? What's intriguing is what's not known. And that is where they have to start. And it's interesting. In fact, amazing, you might say.

The New York Stock Exchange just published a study on productivity, comparing productivity in the United States and Japan. And the differences they found were in a method of educaiton in Japan. Now what happens at Harvard Graduate School of Business and Administration? When a student graduates from there his typical job is assistant to the president of some company, and in five years he wishes to be president. Or he goes into Wall Street, and he learns a few mergers, and in about two years he's earning six figures, and that is what he considers, and we as a society, consider to be terribly productive. He's made his mark!

What do they do in Japan? A graduate of the university in Japan must work on the floor for a couple of years, must work doing electronics, for example, must really understand. I think that is the real need in industry. We've forgotten that.

An author in the New York Times Magazine Section this Sunday spoke of the need to revive manufacturing. We can't always service people. Someone has to do something, somewhere. Everyone's going to serve, who? And we're losing that. So I see that as a huge need.

Now, I guess I come to the question, "Liberal Arts education". I literally ask myself the question, is it really wanted? It's a serious question. I wonder how many students come here and say, "I want a Liberal Arts education. I know what a Liberal Arts education is." To me a Liberal Arts education is creating an open-minded citizen, who will serve the nation. Is that what they are thinking about? And does Industry want that?

Industry, I agree with Walter Blass, really wants someone who knows the latest techniques. That's whom they will hire. And that is really what students come for, basically. I don't know why they take Sociology. There aren't too many jobs a Sociologist can get in a university. Cohen has complained, and says, "I don't know what we're going to do with them. So I ask, really, is that what is needed? I mean, are we over-emphasizing that? Should we revert to having some Liberal

Arts? People who go to Liberal Arts colleges, in my mind, have to go to graduate school if they want to go into a profession. The two complement each other. They even prepare one for the other.

When I was at college, if you wanted to go to Harvard Medical School, they brought in students, more English graduates than they did chemistry graduates, even though, surely, chemistry was far more related to medicine than English. They didn't try to relate the one to the other. They recognized that a Liberal Arts education is to produce a person. That is its real job.

And so I wonder if we really need as many Liberal Arts people; if we are not frustrating people when we give them Liberal Arts, more than we are helping them. Because when they get out into industry, they are going to find, as Walter has suggested, that that world is so different. They have to be pretty strong to accept that difference, to be able to stand up to it. And perhaps they don't want to, perhaps they just see it as a job to be done.

Yes, there is need for some people who are willing to change that industry. It's a tough job, a very tough job. I point out, believe it or nor, when we were doing Management Science at GE, we said, "Gee, you know, we can't really succeed with this generation of manager." You're darn right! But, we said, "The next generation, they'll understand." Well, believe it or not, they did. Why? Because the second generation hired their images as themselves. Who was promoted? The prototype. The derivative of the first manager. The person who related to that manager. And so this is the world. Who is going to change it?

The fundamental problem when I hear that the only important thing is how to communciate, I say, my heavens, before you communicate, you must understand. We have a great communicator as President. But I wonder how much he understands. That's the problem. Who is going to change us? The university can, if it si willing to dedicate itself to that, but that is a tough, long, hard row. And I wonder how many students at Queens are really interested in that. I don't know. I can't tell you that, but my gues is, few. My guess is at Princeton it is few. My guess is at MIT it's maybe zero. But, it is a really major problem, because if we don't do that, our whole civilization is going down the drain. We are just living off the fat of the land, so to speak. I don't see how we overcome that.

I think if we can produce, if you can produce a few well-educated Liberal Arts students, graduates, you have done your job. I don't think you can anticipate graduating 2,000 well-rounded Liberal Arts graduates. If you do twenty per class, I give you high marks.

Thank you.

SECTION 6. DISCUSSION

In the course of the Workshop Conference on December 10, 1982, discussions were held after presentation of the four task force reports and the panel addresses. Some common themes were explored and certain specific points were emphasized.

General Comments

In the course of the discussion, it became clear that there were sharp differences among speakers in their definitions of what a liberal arts (or general collegiate) education meant, how or whether job-related skills might be attended to, and what, if any, should be the role of business people in shaping the curriculum. People participated without specifying what they had in mind when using such terms as "liberal arts," "career-related," "training," and so on. While the occasion was not appropriate for this, it might be helpful to use a "standard" liberal arts curriculum as a model to which discussants could refer, rather than rely upon non-specific and unexpressed recollections of the participants' own college careers or assumptions about current college curricula.

There appeared to be general agreement that the distinction between liberal arts and other components in a college program could be summed up by the differences between "education" and "training." Here too some ambiguity was evident. For example, one discussant observed that a liberal arts undergraduate preparation was both for a life of work and "for living," two rather different functions, since the former implied commitment to a particular set of skills. Another responded that acquiring skills was also a part of general education and preparation for living.

This distinction, and the failure to clarify it in discussion, was raised in another context. How capable, someone asked, were undergraduates of perceiving the difference between the two components of their education? And to what extent were they able to comprehend the learning significance of their instruction? One response was that students were indeed aware of what parts of their education were "useful," i.e., career-related, and what parts were not. Notwithstanding the fact that their judgements were often incorrect, students frequently evaluated their courses according to whether they were practical, in their sense, rejecting those very parts that were general (or "liberal"). As to the second question, it was observed that one of the more important outcomes of an education was the capacity to evaluate one's own learning, and that undergraduate students rarely reached the point of being able to do this while still at college.

Another focus of the discussion concerned the value to contemporary society of liberal arts graduates. About six million students in the United States are studying in some fifteen hundred liberal arts institutions, 80 per cent being public institutions. Is the world now saying that there is no need for so many liberal arts graduates and colleges? Is there a declining need (and, particularly crucial for tax-supported colleges, declining public support) for such preparation?

Liberal arts education, one observer noted, was not career-blind, but rather open-ended. It consisted of pre-professional education. As times change and professions change, it needs to be re-examined.

But under all circumstances it is concerned with similar outcomes: learning to ask the proper questions, learning to inquire and explore (for its own sake, not for any specified product such as grades). The teacher's role in the process is to provoke and to support the student's efforts. The subject matter is less important than these outcomes. This was summed up by one speaker in the words: "In a liberal arts education, you don't learn chemistry, you learn science."

Specific Comments

1. "Human relations training in industry may be desirable, but it does not change people's behavior." Doubts were expressed about the effectiveness of human relations courses (undergraduate) as means of changing attitudes/behavior.

2. An associated idea, the mentor approach, also has, on the face of it, some merit. But it derives from institutions with a clear, consistent ethic and is associated with small, residential, liberal arts colleges. While students may find models among older peers and faculty, this may not be a feasible exemplar for institutional effort on a campus like Queens College. It was noted that it is largely through the non-classroom interactions in a residential college that students acquire the ethos, interests, and "people skills" associated with a good liberal arts education. More attention should be given to the non-classroom aspects of the college curriculum.

3. In order to answer certain relevant questions, why not follow the familiar model of scientific inquiry? Measure the effectiveness of the Queens College product (through a collaborative research effort involving faculty and employers who will seek agreement on terms of refer-

ence, criteria, data collection); identify strengths and weaknesses; use the feedback to improve the college process.

4. Attention was given to the function of college as a place for reflection and, often, for ongoing critique of the corporate society. There are limits to the capacity of the two sectors (academe and corporations) to work together without the one interfering with or corrupting the other.

5. Despite the usual and common criticisms, relatively little is known for sure about "basic skills" (what they are, what standards are appropriate, how they are achieved). Evaluation in this area is not a highly developed process.

6. "The world out there is changing," said one discussant. For instance, the study of geology today must include such dimensions as environmental studies, and the public attitudes, laws and regulations associated with public issues. Academicians may need guidance from industry in these respects.

7. Too much attention to skill development too early may be a distraction and a wasteful effort since interests (development and focusing) are more important at the undergraduate level. There is nothing wrong, moreover, when interests develop relatively late.

8. An interesting example of a "lend-lease" type of association between college and industry was described, which was consistent with the general need for communication and common curriculum concerns, and also brings together individuals and institutions with specific mutual interests. A faculty member was assigned to provide a particular manufacturer with any printed materials (from professional journals, conference papers, etc.) which crossed his desk and which he thought would be relevant to their work. In exchange, the company covered the costs of a part-time research assistant for the faculty member.

APPENDIX A: PRELIMINARY PROJECT ACTIVITY

M.A.E. 1/9/82

THE NETWORK CURRICULUM ROUND TABLE

Introduction. The Curriculum Round Table is a new Queens College project funded in part by a grant from the Exxon Education Foundation. Representatives of business, industry, government and higher education have been invited to discuss new ways of working together to improve the educational quality of the work force. Though the College is taking the initiative of bringing the several interest groups together, it does not envisage a one-way interaction from one group to another. Instead it is intended from the outset to encourage interaction among the parties involved, and anticipates benefits to each sector.

Rationale. We are increasingly aware that efficiency, productivity and the quality of life depend on the continuous education of adults. As a result, a large array of provisions has been developed to upgrade or develop new job-related skills and to enhance the general level of education of the work-force. Higher education has played a part, particularly through schools of business and of continuing education. But much of the activity is within private companies, management associations, and proprietary schools: a patchwork arrangement serving particular clienteles and emphasizing selected curriculum areas. Colleges and universities are often not connected with such efforts because they are constrained by traditional self-defined roles and because they are often regarded as outside the mainstream of the life of work. Finally, the public initiatives and federal support that were intended to meet these conditions have been waning.

Some General Questions. Though we all have preliminary ideas about what is needed and what is possible, some general questions can guide our considerations:

Within the general area of education, who needs what? Which groups need access to what kinds of educational opportunities, and what are the particular curriculum needs? What kinds of activities should Queens College and its collaborators generate, encourage, pursue and implement?

Information-gathering, a survey of available resources, and needs assessment are all implicit in these questions. Additional tasks include discussion and development of proposals for action, as well as testing their feasibility. However, aside from the operational outcomes (that is, implementing some particular curriculum activities), the process is itself a potentially valuable one. The Curriculum Round Table is an ongoing activity consciously exploiting the potential of networking theory (see attached).

The Network Curriculum Round Table is seen as a discussion and advisory group, its composition and functions changing according to the ideas and needs of the participants. We may wish to meet with representatives from one sector of the economy, for example, to test the thinking around a particular plan: or with representatives of a selected group of, say, middle-sized companies in a particular location, to explore their needs and the possibilities of launching a collaborative activity to meet them. But in addition to serving as sources of information and advice, participants of the Round Table will also be encouraged to participate in curriculum development, in the delivery of educational services, in continuing assessment of what is under way, and in identifying possible new directions for activity.

First Steps. In the first phase of the project, the priorities are to initiate a network for information gathering and exchange of views that will link producers and consumers of educational services within education, business, and government. What are some of the educational activities of larger corporations? What can be learned from their experiences, successful or not? To what extent can Queens College collaborate with employers and others to meet the educational needs of businesses, employees, or other groups in the metropolitan area?

We are by no means the first to raise these questions. Many large corporations have staff training and development programs that might serve as models for emulation. National and regional organizations of various kinds provide courses and seminars for prescribed clientele groups. Business schools all have outreach programs, especially for middle and upper management levels. We wish to identify groups that for one reason or another have not developed the resources they need and to formulate curriculum with them.

Depending in part on the substance of the first discussions, and the insights and directions suggested in the exploratory phases, several outcomes are anticipated. The process will involve extending the network of participants as well as focusing more narrowly on a number of potentially useful and "do-able" activities. This would seem to include, at the least, such tasks as:

Matching the resources available, including the expertise of faculty at Queens College, with staff development needs and activities in business, labor, and government.

Testing the feasibility of particular programs or activities for selected target groups (e.g. middle-sized businesses, or a particular location, or a specified level or type of worker);

Planning more meetings with the same or different participants to facilitate further networking activities and plans for curriculum activity.

Caveats. From the very beginning, we wish to avoid a number of possible dangers. We do not intend to duplicate what is already available, except to the extent that there is need for expansion. We will not compete with existing operations. We will not promise more that we know we can in fact accomplish. Finally, technical training as well as many specific job-related skills are, we believe, best left to specialized educational institutions and to the employers. Furthermore, we must avoid some possible distractions. For example, much has been said about the dichotomies and mutual interests of higher education and business, and about the respective natures of liberal arts education and career training. When we enter into such discussions we must also consider how they may inform attempts to achieve some desired objectives. Finally, in order to match needs and resources and to achieve truly collaborative interactions and activities, we must acknowledge that all interest groups have something to gain from participation, though the perceived benefits may differ; all will have something to contribute; and no single group has all the answers.

The First Meeting

NETWORK CURRICULUM ROUNDTABLE

Sponsored by Queens College

and

Supported by The Exxon Foundation

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FEBRUARY 3, 1982 - THE HARVARD CLUB, NEW YORK CITY

APPENDIX B: ESTABLISHING TASK FORCES

QUEENS COLLEGE
of THE CITY UNIVERSITY OF NEW YORK
FLUSHING • NEW YORK 11367

NETWORK CURRICULUM
ROUND TABLE

MEMORANDUM

TO: All Task Force Participants

FROM: Max A. Eckstein and John Seley, Co-Directors
Network Curriculum Roundtable

DATE: September 15, 1982

SUBJECT: Luncheon Meeting, Thursday September 9, 1982

This is to thank all of you who joined us at our recent meeting and to summarize the discussions. It will also serve to inform those who were unable to attend but who have indicated their interest in participating in the work of the Task Forces.

From the general briefings provided by Dean Cairns, Professors Eckstein and Seley, the following points should be noted:

1. The project calls for each task force to proceed independently, making whatever arrangements they find most convenient. Members may wish to co-opt and/or to use resource persons. Each of the four groups is asked to focus upon curriculum (both pre-employment and post-college) as it relates to its particular theme. Some key questions might include:

> What is needed? What is being done (within the college curriculum and in training or development programs at the place of work)? What could and should be done?
>
> The exchange of perspectives from faculty and non-faculty should be particularly useful, and the possibilities of new ways of collaborating considered.

2. End Product. Each task force is asked to produce a report on its discussions/investigations. It may approach all or some of the questions mentioned above, it may contain relevant background information and/or make general or specific recommendations.

We propose inviting all the task forces to meet in a workshop setting, when draft reports can be presented and discussed. At that time we will also invite additional guests to participate as respondents.

Supported by a grant from The Exxon Education Foundation

3. Time Line. The following schedule is proposed.

Draft reports completed	Nov. 15
Workshop Meeting	Dec. 10
Final Reports to printer	Jan. 21

4. While the budget does not permit us to offer any adequate honorarium to participants for their time and efforts, we are able to make a payment of $200 to each member to cover their expenses and as a token of our appreciation.

5. Liaison with Project office. The two co-directors (Eckstein and Seley) will serve as 'facilitators' to the Task Forces and our secretary (Mary Randell, 212-520-7026) will provide whatever necessary assistance is possible.

TASK FORCE DISCUSSIONS: HIGHLIGHTS OF SMALL GROUP MEETINGS

Task Force I and III: Impact of New Technologies: Human Relations

The first meeting of the new technologies task force explored the range of problems encountered by the introduction of new technology into the business environment. This includes the difficulty of learning new technology, the way the new technology affects business decision making, and the effect of the new technology on human relations. It was felt that the first issue -- difficulty of learning -- would become less and less of a problem as computers and other technologies become more verbal, i.e. capable of communicating in plain English. The second problem -- business decision making -- was considered to be more serious, having an effect on the traditional forms of information flow in business. In particular, the issue of who is allowed to receive what kinds of information is a significant concern which has not been addressed clearly thus far. The third issue -- human relations -- was considered to be a very significant problem. Will the new technologies isolate workers from each other? How will the range of informal business and social relations be affected? Will people become less skilled at the ability to relate to each other as they spend more and more of their time "talking" with machines?

The task force adopted a working outline which includes four subjects: 1.) The nature and scope of the problem, essentially an expansion of the discussion begun at the first meeting with concrete data on changes (for example, see the September issue of *Scientific American*); 2.) Case studies highlighting issues raised in Part (1). Cases to come from a range of business types; 3) Analysis of cases showing explicit relationship between examples and more general concerns; 4) Recommendations for curriculum, including (but not limited to) new courses, revision of existing courses, new course formats (for example, more hands-on use of new technology), University-business interaction, and unresolved issues.

The task force agreed to meet for lunch on Monday September 20, and each member is to bring material or information on the outline topics as appropriate.

All agreed that this is a significant topic and worthy of further study.

Convener: John Seley

Next Meeting: September 20, Lunch, The Graduate Center

Task Force II: Social Change/Workplace Environment

The discussion was lively and wide-ranging. It touched on a variety of social changes/problems/issues that have an impact on the workplace and job performance. These included alcoholism, changing expectations and roles among women, interactions of family problems and work-related problems, the difficulties of adjustment to retirement, and the like. Participants pointed out the failure of traditional curricula and courses to deal with many of these issues in other than a theoretical way.

Convener: Phyllis Tortora

Next Meeting: September 30,4 P.M., Queens College, Remson 300

Task Force IV: New Curriculum Directions

The contemporary general (or liberal arts) undergraduate curriculum should include instruction for all students in:

a. How to study, to deal with ideas, to generalize from personal experience;
b. Understanding and dealing with their own feelings and their relations with others (especially fellow-workers, peers, supervisors, underlings);
c. Recognizing and dealing positively with people of different cultural and social backgrounds;
d. Effective communication;
e. The knowledge and skills necessary for informed decision-making as citizens and as consumers (e.g. the ability to judge environmental issues calls for some understanding in the natural sciences; political views and judgements in these and other social issues requires some comprehension of the social sciences; all assume some sense of what research entails and means as well as what it does not mean);
f. Computer literacy. None of these assert that specific disciplinary content is unimportant but they do suggest that these general skills and the fostering of flexibility, creativity, and imagination are most important and may be developed through a variety of content studies.

A good undergraduate general education seeks to balance these varied elements and, as one member put it, encourages both creativity and meeting deadlines.

It should be noted that the college's target population includes a large proportion destined for middle management positions in industry, commerce, and public service.

Convener: Nyles Teicher,

Next Meeting: To be arranged.

Task Force V: Curriculum

Skill in writing, speaking, and basic computation is not a new concern. But is everything being done that can be done to ensure that Queens College graduates possess these basic employability skills?

Task 1: to collect information on Queens College entrance requirements, grading practices, graduation requirements, policy on passing students who lack basic skills.

How are students counselled on academic programs and career options? This seems to be crucial. The group felt that this area should be studied and that recommendations should be made.

Task 2: to describe counselling practices at Queens College.

Computer literacy/use (not computer science) is one specific curriculum area of general importance and interest.

Task 3: to assess availability and explore possibilities of computer courses for the non-specialist.

How do employers screen applicants in the general but basic skills above? Or do they tend to select on the basis of specific technical or content skills alone?

Task 4: to gather information on company hiring practices in these respects.

Above information to be collected by Sept. 23

Next Meeting: October 5, 4-6 P.M. Graduate Center

Convener: Virginia Thompson

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PARTICIPANTS

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APPENDIX C: THE CONFERENCE

Education and Employment: The Relation of College Study and the World of Work

NETWORK CURRICULUM ROUND TABLE

Friday, December 10, 1982

Student Union, 3rd Floor -- Queens College

PROGRAM

9:30 A.M.	Registration and Coffee	Room 314
10:00 A.M.	Two concurrent panel sessions:	
	I. Impact of New Technologies	Room 304
	II. Curriculum	Room 307
11:15 A.M.	Two concurrent panel sessions:	
	III. The Impact of Social Change on the Workplace	Room 304
	IV. New Curriculum Directions	Room 307
12:30 P.M.	Luncheon	Room 310
1:45 P.M.	Panel Session	

Education and Employment: The Future

Walter P. Blass,	Director of Strategic Planning American Telephone and Telegraph
Adrian J. Grossman,	Vice President New York Stock Exchange
Saul B. Cohen	President Queens College, C.U.N.Y.

NETWORK CURRICULUM ROUNDTABLE

December 10, 1982

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